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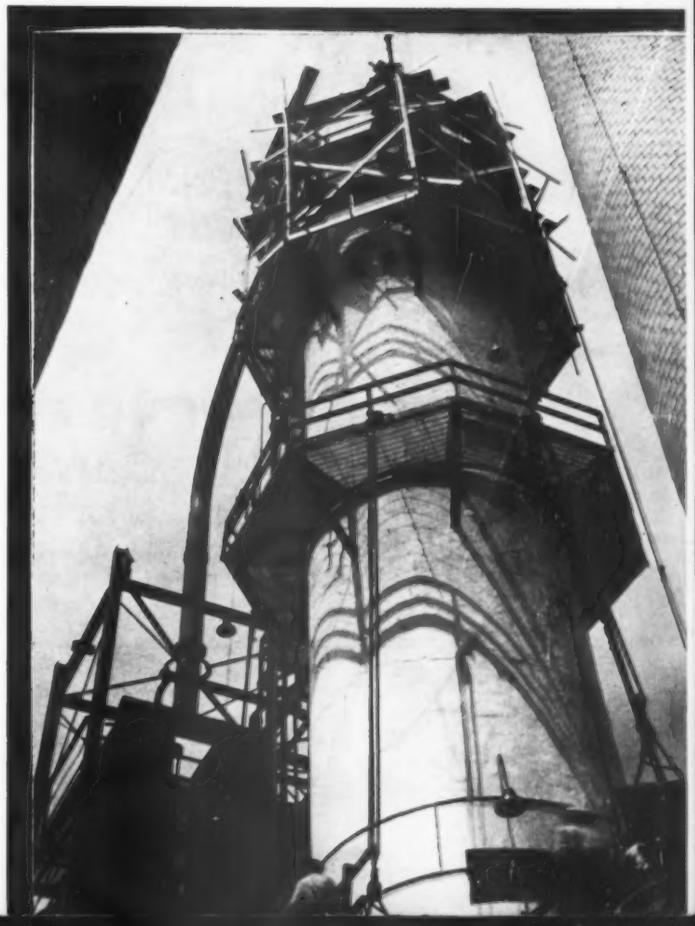

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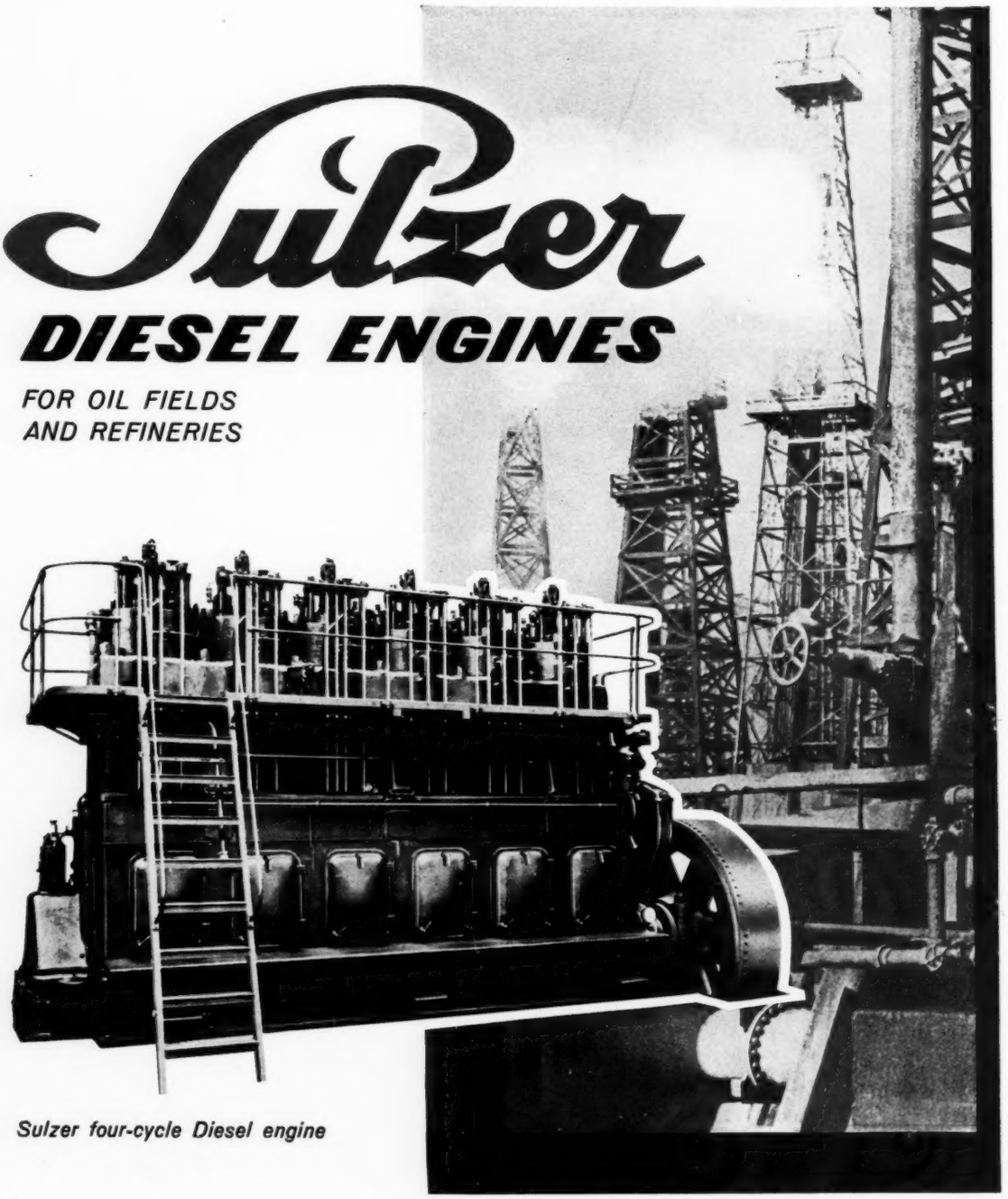

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DECEMBER
1932

WORLD PETROLEUM

(Incorporating "Petroleum Equipment Exporter")

VOLUME III — EDITOR, E. W. MAYO — NUMBER 12

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PETROLEUM

Texas Meets Expectations

DRAMATICALLY demonstrating the progress of public sentiment within the state in support of stabilization in crude oil production the State Legislature of Texas, on November 12, passed a bill, to which Governor Sterling promptly affixed his signature, specifically authorizing the State Railroad Commission to take into account the factor of economic waste in determining allowable production from the various oil pools of the state. This action followed swiftly on the decision of Federal judges that the Commission had exceeded its authority by giving consideration to the economic factor in certain of its orders. Not only did the Legislature act with extraordinary promptness, by contrast with its past record, in dealing with this matter but the measure enacted was passed by more than a two-thirds vote in each of the two Houses of the Legislature, thereby enabling it to go into immediate operation.

How great a change is here involved may be appreciated by recalling that little more than a year ago this same Texas Legislature, with virtually the same membership, wrangled for weeks over a conservation law and finally adopted a measure which specifically forbade the State Railroad Commission to take into account economic waste in preparing its orders and instructing it to confine them solely to the prevention of physical waste. The Commission struggled manfully to follow these instructions and gravely issued edicts raising or lowering the authorized output per well in East Texas on the obviously artificial assumption that a production of 50 bbl. per well in that field involved physical waste while one of 46 bbl. did not. Meanwhile the producers of East Texas had learned the lesson that gross overproduction inevitably must destroy the value of their product. When the Federal Court punctured the flimsy pretense under which the State Commission had perforce been attempting to function the voice of East Texas was joined to that of other producing sections of the state in demanding the enactment of a workable statute. The legislators, as dutiful public servants, responded to what unquestionably was a majority demand.

Credit must be given to those intelligent leaders of the Texas oil industry who have labored without ceasing to show their less enlightened associates the necessity of looking facts in the face and recognizing that oil produced to sell at a loss is wasted from the viewpoint of the producer just as surely as though it were run into the sea. Credit is due also to the trade and news press for the unwavering support which its members have given, with few exceptions, to the cause of practical conservation.

The new measure has still to run the gamut of the courts. Its legality undoubtedly will be questioned and apparently there is no power on earth that can prevent some Texas judges from indulging in their favorite pastime of issuing injunctions. Since the new law generally follows the lines of the similar Oklahoma statute, which already has been upheld by the Supreme Court of the United States, it is probable, however, that it will be supported by that august tribunal whenever a test case comes before it.

By its recent action Texas has justified the confidence we expressed in it last month when we stated that we felt sure that it would not fail the cause of conservation when put to the test. For the sake of the State itself, its producers of petroleum and the reputation of its legislators we are glad that it has done so.

▼

Oil Industry and U. S. Elections

NATIONAL elections in the United States have had the very definite result of placing the Democratic party in full control of the Federal Government with large majorities in both houses of Congress in addition to possession of the Presidency. The sweeping nature of the change makes speculation as to the probable course of the new Administration more uncertain than it would be if Democratic success had been attained by a narrow margin. In the latter case the balance of power might rest in the hands of a small bloc as has been the case more or less continuously in the past few years. Since, however, the dominant party has a wide margin of voting power the opportunities for small groups to impose their will on the majority are likely to be reduced to a minimum. If party discipline can be enforced there is nothing to prevent the putting through of whatever legislative program may be adopted by the party leaders. On the other hand the large number of new members in the Congress provides an element of uncertainty as to the alignment that may be formed on bills that are not specifically party measures.

Unquestionably the most urgent problem before the Federal and State Governments at the present time is that of reducing the cost of government, simplifying its machinery and lightening the burden of taxation. This is a matter of concern to all the people and is of particular importance to the producers and distributors of petroleum products since theirs is perhaps the most heavily taxed industry in the country. The adoption of a sound and consistent policy of governmental economy undoubt-

edly would do more than anything else to encourage business activity and restore prosperity. Conditions are exceptionally favorable to the success of such a program through cooperative effort between Federal and State officials if the President-elect will provide the strong leadership needed. Whether or not he will do so remains to be seen.

Legislative proposals having particular application to the oil industry are those looking to the modification of anti-trust laws to the extent necessary to permit trade agreements where these are to the advantage of consumers as well as producers and to the authorization of interstate agreements for the conservation of oil and other natural resources. Prospects for the liberalization of the anti-trust laws probably have become more remote as a result of the election since it has brought increased power to political leaders whose position in the past has been rather consistently in favor of the repressive regulation of business. The interstate compact bill has been favored by members of the Hoover Administration and there is a possibility that it may receive favorable action at the coming short session of Congress. The attitude toward it of those who will be in authority after March 4 next has not been publicly defined. Failure of the revenue bill enacted at the last session of Congress to provide the income estimated by its supporters apparently will necessitate the revision of that measure. Such revision may involve some change in the so-called excise tax on imported crude and manufactured products. Defenders of the oil tariff already are rallying their forces to oppose a reduction in existing rates and to force an increase if possible.

One and only one wise conclusion that members of the oil industry can draw from the late election in the light of past experience is that the industry must rely on its own efforts rather than on governmental action for the solution of its problems.

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Problems of Price Advance

RECENT events in the petroleum industry suggest two interesting questions. It is of more than passing importance to the future welfare of the industry that these questions be answered correctly. Can industry —any industry—be stabilized except on a basis that will permit its various operations to be conducted profitably? Is it possible to maintain in competitive markets for any extended period of time different price levels for a commodity of world wide use and production? Whether these questions be studied from the angle of economic theory or that of practical experience the answer must be a negative one. Yet, in the exigencies of attempted adjustments to shifting market conditions, efforts no doubt will continue to be made to support such untenable positions.

When, in early October, a number of important oil companies posted new and higher prices for crude oil in the Mid-Continent and Texas fields it was generally accepted that their action was intended to encourage producers to support a further curtailment of output that would bring production more nearly into balance with the lessened demand for petroleum products. Except for this consideration it is hardly to be supposed that any such price advance would have been made when the season of curtailed demand for motor fuel was just beginning. Certain large purchasers of crude in the fields affected by the price advance took the position that it could be justified only by an increase in the prices of petroleum products and refused to join the movement until they saw some evidence of being able to recover the added cost from their sales of finished products.

While the truth that buyers and not sellers actually determine prices has been amply and forcefully demonstrated in the past two years and while this would seem to suggest that the logical course for price changes to follow would be from the finished product back to the crude it is possible to produce arguments both for and against the October price increase. It is clearly unreasonable and impracticable to expect refiners as a settled practice to purchase crude oil, convert it into finished products and sell these at a loss. On the other hand it can be contended that the advance in crude was necessary to bring about the needed reduction in output and that by cutting off some 180,000 bbl. of daily crude production the foundation would be laid for an increase in the prices of manufactured products. As we stated last month the successful outcome of a forced advance in crude prices must depend upon a general downward revision of production quotas and the application of rigorous measures to suppress the flow of oil illegally produced.

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International Aspect Involved

IN THE discussion of the crude price advance it has been treated as though it were entirely a domestic matter but a phase of the subject that has now assumed an important aspect is its bearing upon the export price. In the case of any staple commodity price usually is determined at the place of principal demand. So far as petroleum is concerned the principal market unquestionably is the United States. As was clearly pointed out by Joseph E. Pogue in an article published in the October number of WORLD PETROLEUM a special condition exists in the petroleum industry in that the ownership of pipeline systems by refining companies has transferred the market in which crude oil prices are determined from the centres of consumption to the producing fields. Through this circumstance the price of crude oil at Gulf Coast ports has become the basic price for international markets. Since a considerable percentage of the crude produced in the Texas and Mid-Continent fields enters the export trade the companies engaged in this trade obviously must be handicapped in their operations unless the export price of American crude can be advanced along with the domestic price and this in turn involves a corresponding increase in the prices of petroleum products in international markets.

At this point the movement for higher crude prices in the United States becomes involved in the agreement recently reached by the leading international oil organizations to act together in matters affecting international market prices and operations. To make a rise in American crude fully effective it becomes necessary to have the assent of organizations drawing their supplies from foreign sources and finding the outlets for their finished products in foreign countries to agree to an advance all along the line though they may feel that conditions controlling their particular operations in certain markets do not call for such a procedure. Since the principal companies engaged in the export of American oil possess available sources of supply in other parts of the world they might meet the situation by drawing upon these sources to the exclusion of the American product but this would result in an accumulation of crude in the United States and so would tend to defeat the very purpose sought for in the advance of American crude prices. The whole situation illustrates anew the truth that oil is essentially an international industry and that its stabilization requires unity of purpose and action on the part of the chief international producing and distributing interests in order to be fully effective.

▼

Hopeful Sentiment Marks A. P. I. Meeting

Members of United States Oil Industry at Annual Convention Feel Encouraged by Progress Toward Greater Stability—Many Topics Discussed —C. B. Ames Elected President.

ENCOURAGED by the advance made during the past year toward greater stability in the oil industry of the United States and hopeful that this progress will continue, members of the American Petroleum Institute assembled for the thirteenth annual convention of their organization at Houston, Texas, November 15–17, in an atmosphere of distinct if moderate optimism. This attitude was reflected in the address of retiring President Amos L. Beaty and in that of Sir John Cadman, chairman of the Anglo-Perisan and Iraq Oil Companies, which is published in full on other pages of this issue, as well as in the discussions between members of the rank and file of the industry which went on in the intervals between meetings.

President Beaty in his address, delivered at the general session of the convention, November 15, referred to the new conservation law recently enacted in Texas, saying:

"This to my mind is the outstanding achievement of the year. The oil industry has an opportunity to operate rationally so far as this state is concerned. Oklahoma and Kansas have their houses in order and have not for some time permitted the physical or economic waste of oil. When there is nationwide a fair balance between supply of crude and demand we may reasonably expect the refining and marketing branches of the business to improve."

Referring to the proposal for a Federal law authorizing oil producing states to act concertedly in regulating production President Beaty declared that what is needed is a simple act under which production can be controlled and fairly allocated in times like the present and that Federal representation on a joint board so constituted would insure protection to non-producing states.

Discussing at length the problems of mounting taxation and the accompanying evil of tax evasion President Beaty pointed out that gasoline taxes alone, aside from pipe line, property and franchise taxes levied upon oil companies, now are approximately 100 percent of the wholesale price of gasoline and that the incentive to tax evasion increases as the tax rate rises. On this subject he said:

"Legitimate marketing simply cannot exist on a profitable basis until the incentive to bootlegging ceases. It has developed, moreover, that the law of diminishing returns has operated where the tax is high. In such cases the tax evader's sales increase and the legitimate marketer's sales decrease until the state actually receives less total revenue under the higher tax."

C. B. Ames, president, American Petroleum Institute

Another subject to which President Beaty gave attention in the concluding section of his address was the tendency, inimical to the oil industry, toward extreme measures of legislation limiting the operation of motor trucks upon the public highways where the purpose was to prevent competition with the railways. He declared that this was a subject which undoubtedly would come in for much attention during the next few months.

At the general session on November 16 the convention listened to a spirited address by Peter Molyneaux, editor of the TEXAS WEEKLY, who took for his theme the necessity of cooperation in the planning and control of production to enable society to cope with present day conditions. Henry I. Harriman, President of the Chamber of Commerce of the United States, stressed the urgency of modifying the anti-trust laws "to give to enterprises competing in interstate commerce the right to obtain through agreement the advantages in dealing with production, markets and prices which they now may lawfully obtain through merger."

Throughout the three days of the convention divisional and committee meetings were held at which problems of production, refining, transportation and marketing were discussed and a large number of technical papers were presented. The latter are reviewed on other pages of this issue.

At a meeting of the Board of Directors on November 16 the following officers were elected to serve during the coming year: President, C. B. Ames, Vice President and General Counsel of The Texas Corporation; Vice President at Large, H. R. Gallagher; Vice President for Production, C. F. Roeser; Vice President for Refining, D. J. Moran; Vice President for Marketing, W. T. Holliday; Executive Vice President, W. R. Boyd, Jr.; Treasurer, Axtell J. Byles; Secretary

and Assistant Treasurer, Lacey Walker; Executive Committee, C. B. Ames, H. R. Gallagher, C. F. Roeser, D. J. Moran, W. T. Holliday, Axtell J. Byles, Amos L. Beaty, R. C. Holmes, F. A. Leovy, J. Edgar Pew, E. G. Seubert, H. F. Sinclair and Walter C. Teagle.

Judge Ames, the new President, is well known to the industry, having been for several years General Counsel to The Texas Corporation and active in the work of the Institute. He is a native of Georgia, practiced law for a number of years in Oklahoma City and was an Assistant Attorney General of the United States in President Wilson's administration. He is an authority on the anti-trust laws.

At an earlier period of the convention the membership of the Board of Directors was increased from 72 to 77 on recommendation of the Board of Councillors and the following directors, nominated by the Board, were elected to fill vacancies caused by the expiration of terms: Production group: Pacific Coast: R. A. Broomfield, Barnsdall Oil Corporation; L. P. St. Clair, Union Oil Company; Oscar Sutro, Standard Oil Company of California; Central U. S.: W. S. Farish, Humble Oil and Refining Company; J. A. Vickers, Vickers Petroleum Company; Eastern U. S.: Axtell J. Byles, Tidewater Associated Oil Company.

Manufacturing group: Pacific Coast: John A. Brown, General Petroleum Company; Central U. S.: Roy B. Jones, Panhandle Producing and Refining Company; Eastern U. S.: Frank B. Fretter, National Refining Company; G. R. Nutty, Gulf Refining Company; W. E. Smith, Standard Oil Company of Kentucky.

Distribution group: Pacific Coast: K. R. Kingsbury, Standard Oil Company of California; Central U. S.: H. M. Dawes, Pure Oil Company; L. L. Marcell, White Eagle Oil and Refining Company; Eastern U. S.: E. W. Sinclair, Consolidated Oil Corporation.

Transportation group: Ships: J. Howard Pew, Sun Oil Company; Pipe Lines: C. H. Kountz, Sinclair-Prairie Pipe Line Company.

Supply group: John A. Geismar, National Supply Company.

Foreign trade group: W. C. Teagle, Standard Oil Company (New Jersey).

At Large group: C. B. Ames, The Texas Corporation; E. J. Bullock, Standard Oil Company of Indiana; Jacob France, Mid-Continent Petroleum Company; Wirt Franklin, Wirt Franklin Petroleum Corporation; S. A. Guiberson, Jr., Guiberson Oil Company; Wm. F. Humphrey, Associated Oil Company; D. J. Moran, Continental Oil Company; W. G. Skelly, Skelly Oil Company; Robert W. Stewart; Howard Bennette, Western Petroleum Refiners' Association.

In addition the Board of Directors elected the following as members of the At Large group: H. R. Gallagher, Rio Grande Oil Company; R. G. A. van der Woude, Shell Petroleum Company; Ralph B. Lloyd, Independent Oil Producers' Agency; T. H. Barton, Lion Oil and Refining Company; Ben Harris, Oil Well Supply Company; H. L. Hunt; J. C. Van Eck, Shell Union Oil Corporation; W. M. Keck, Superior Oil Company; F. S. Fales, Standard Oil Company of New York; E. R. Brown, Magnolia Petroleum Company.

The Board of Directors by resolution provided for a special committee of seven members to be known as the American Petroleum Industries Committee the duties of which are, "to formulate policies for and to supervise, control and direct all Institute activities in matters of gasoline or other petroleum products taxation, its evasion, diversion, increase or decrease, substitutions of petroleum products, and any and all legislation affecting said matters or other matters related to the distribution of petroleum products."

The Committee is authorized to set up its own staff and is expected to conduct an active campaign against unjust and burdensome taxation or adverse legislation directed against the petroleum industry. As the first committee the following were nominated: H. T. Klein, The Texas Corporation; Edwin S. Hall, Standard Oil Company of New Jersey; W. J. Guthrie, Gulf Refining Company; Roy T. Osborn, Sinclair Refining Company; J. J. Cosgrove, Continental Oil Company; W. A. McAfee, Standard Oil Company of Ohio; Paul Gregg, Union Oil Company of California.

The convention ended Thursday evening, November 17, with a dinner at which there were no speeches but a varied and entertaining program of amusement provided by a group of Texas oil men known as the Houston Wildcats.

▼

I. P. A. Concentrates on Tariff

DECLARING that its sole activity for the present shall be to work for a tariff equivalent to the difference in the production cost of petroleum and its products in the United States and foreign countries the Independent Petroleum Association of America, at its annual meeting at Tulsa, Oklahoma, November 14, adopted changes in its constitution to make it a unified national organization by eliminating state divisions, reduced its annual fees and decided upon a drive for an enlarged membership.

In his address to the Association President Wirt Franklin pointed out the probability that the present revenue bill would be revised at the coming session of Congress and the necessity of vigilance to retain and if possible increase the existing tax on imported crude and products. He also described the efforts being made to secure a reversal of the Treasury ruling by which Roumanian naphtha is being brought into the country at a tax of only half a cent per gallon instead of the 2½ cents which domestic interests feel that it should pay in view of its use as motor fuel. The following resolution dealing with these subjects was adopted by the meeting:

> Resolved, that the sole activity of this Association at this time shall be securing a tariff or excise tax on foreign petroleum and its refined products equal to the differential in production costs between the United States and any foreign country from which crude petroleum and its refined products may enter the American market.
>
> In furtherance of this objective be it further resolved, that it be the immediate purpose of this organization to secure the correction of the present language of the revenue act so that any potential carburant motor fuels shall be required to pay a tax on the same basis as gasoline.

The Association went on record in favor of the restriction of domestic production to balance supply and demand, in support of gasoline tax reduction and in opposition to tax evasion and the employment of taxes for purposes other than highway improvement. Its views on these subjects were expressed in the following resolutions:

> We recommend the activities of the various associations that have for their specific objectives other movements leading to the general improvement of the industry and in whose membership there are also enlisted many of the members of this Association, and
>
> We specifically commend to the membership of our Association activities that have for their immediate purpose the correction of the tax evasion evil which is one of the most disturbing elements in the price structure:
>
> The reduction of the state gasoline taxes to such an extent as will eliminate the temptation for unscrupulous persons to evade the tax:
>
> The use of funds collected from gasoline taxes exclusively for construction and maintenance of highways.
>
> Be it resolved that, as a necessary complement to the restriction of imports, it is essential that there be a restriction of domestic production to balance supply and demand; and
>
> Furthermore, we urge our membership to see that such rules and regulations as have been or may be established in the oil producing states to accomplish this purpose shall be equitably enforced without discrimination.

Other resolutions expressed the appreciation of the Association to its officers and to members of Congress for their support of excise tax on imports of petroleum and its products. Particular applause greeted President Franklin's tribute to Senator Thomas, his successful opponent in the recent Oklahoma Senatorial race, for the support he had given to the effort to place a tariff on oil imports.

President Franklin and the other executive officers were reëlected for the year.

Petroleum and Policy

Sir John Cadman Stresses Necessity for Cooperation and International Point of View in Oil Industry in Address Delivered Before A.P.I. Annual Meeting at Houston.

WHEN I was first asked to attend this gathering, I felt both pleased and sorry: pleased, very naturally, at the opportunity of again visiting your country where I have so many good friends; sorry—to be candid—that I had to undertake one of the rôles in the talking program, since the less one says in these puzzling times, the better. Recent events have impressed on us the vast difference between gold and silver; and since, as we learned in our infancy, speech is silver and silence golden, I should like to have stuck to the gold standard.

It is four years since I last had the privilege of addressing you at your annual meeting, and what stresses and trials we have gone through in the interval! The stoutest heart, even among those beating in this great Lone Star State, might well have quailed if we could have foreseen what was to happen between then and now. Nevertheless, we have survived. We are poorer in cash, but we are richer in experience; and, if we have capitalized under the head of wisdom what we have lost in money, the investment must ultimately bring a good return.

In concluding my speech at your meeting in Chicago in 1928 I said: "For oil as a universal 'element' there are no real boundaries except those that are economic. Let us not rest content until we have re-drawn the map of that one great oil country—the World."

Our Course Has Been Right

WHEN I used those words, I did not foresee that there would be little contentedness and no rest for any of us for several years to come. But, looking at our position now and our circumstances of four years ago, I feel that our course has, in the main, been right. The difficulties that beset us were formidable. In every country, and in every industry, the intervening period has been characterized by all forms of economic disorder. The finances of the world have gone awry; the disorganization of monetary exchanges has heaped difficulties upon international trade; nationalism and national self-sufficiency have erected barriers to impede the flow of industrial commodities; production has run riot, and consumption has shrunk. Yet, despite the difficulties which encompassed us and the obstacles we have had to surmount, the oil industry today stands on firmer ground, and has before it a more open path than almost any other industry of the world.

For that we are entitled, I think, to congratulate ourselves. But congratulation is particularly due to the American oil industry and to its prominent leaders. Here, in the United States, you had the greatest task; but, by various methods, despite obstacles which a few years ago appeared insuperable, you have made great progress towards bringing your production under control. Having been faced with a very complex problem, you have applied yourselves resolutely to its solution, and have done much towards the attainment of a wise and prudent national regulation which, a few years ago, appeared beyond the powers of any human beings.

Cooperation Points the Way

THAT achievement is due to the exertions of many men; and the principle which has been its mainspring is indicated by the one word "cooperation." A few years ago, that word—and all that it connotes—was unused and unrespected. It is now familiar to everyone concerned with oil in every country; and it is through continued cooperation—strictly, of course, within the laws of every country—and the common-sense actions which it evokes that we shall secure the happier prospect which has opened for us all.

I shall not attempt to fix the date on which the principle of cooperation was conceived, nor to name those most intimately concerned in its conception. Indeed, it would perhaps be better to assume that cooperation had a spontaneous origin among the leaders of the oil industry, irrespective of nationality. However that may be, the rate of its growth and the support given to the principle throughout the world have exceeded, I am sure, our most sanguine expectations.

I like to remember that I participated at one of the early conferences at which the principles essential to cooperation in oil were outlined and discussed. It was there, I believe, that the principle of "as is" was developed—since to become the keystone of cooperation in international petroleum trading outside the United States. From that time onwards, a set of principles has been in evolution with the object of establishing a fair and just equilibrium which would admit of the stabilization of exports, prices, and trading conditions. Those principles are now—I am happy to say—in process of adoption by most of the important oil-exporting countries of the world.

The great strides in this cooperation which have been made in the past few months can be ascribed mainly to the courage and initiative of the chief men of the American oil industry; and the future industrial historian will pay high tribute to them for their tact, skill, and pertinacity.

For all this, credit is primarily due to human effort and initiative. But if we are candid with ourselves, we shall admit that a non-human agency was needed to prepare the way—to mould men's minds towards reception of an ideal which, in other circumstances, would have remained alien and unwelcome. I am not cynical in saying that the agency was adversity. During a period of prosperity, all is thought to be for the best. Each year shows a profit: therefore, nothing is wrong. If, by good trading, we can gain a little business from the other fellow—well, he can always take a share of someone else's trade to make it up. The same principle held good in times of slight business depression. Then as the old saying reminds us, the rain falls alike upon the just and the unjust fellow—but more falls upon the just "because the unjust has the just's umbrella." The thing to do was to see that we, at least, had an umbrella.

Unfortunately, in these latter years, the drizzle of bad trade developed into such a deluge of adversity that the struggle for shelter monopolized all our energy. Nevertheless, we all were drenched—and that at a time when, by sitting comparatively still, by avoiding jostle, by sharing, each of us could have kept moderately dry under the united—or, let us say, cooperative—surface of whatever umbrellas were available.

Eternal Vigilance Needed for Security

THE point to remember, I think, is that although we may now be relatively sheltered, it is still raining outside. The conjunction of a fall in demand and a great potential surplus of supply confronts us with a situation which is inherently dangerous. During the continuance of that danger it is vital that none of us should do anything which, although it temporarily profited him, would harm the remainder, and so eventually redound to his own discomfort. Moreover, in the better times which we hope are ahead—always postulating the maintenance of cooperation and good sense—let us see to it that the lessons of the lean years are not forgotten. Even in those times—if and when they come—the utmost vigilance will be required to insure that there shall be no relaxation of effort to continue the balance of supply with demand; for any such relaxation would inevitably lead us back again to the state of chaos from which we are only just emerging.

In saying this, I address myself to all classes and all categories of persons interested in oil, whether here in the United States or abroad. The fortunes of each unit are inseparable from the lot of the whole. In most foreign fields the control of production is reasonably well assured—so far as the good will of operators can assure it; but agreement to limitation of output by royalty owners has not been secured without difficulty. Nevertheless, it needs to be stated emphatically that balance of supply with demand is as vital to the recipients of royalty as it is to operators themselves. Without it, the whole industrial edifice of oil will crack, crumble, and fall. The royalty owner also must take the long view, and regard such decrease in revenue as may temporarily occur as his insurance premium for future safety and stability.

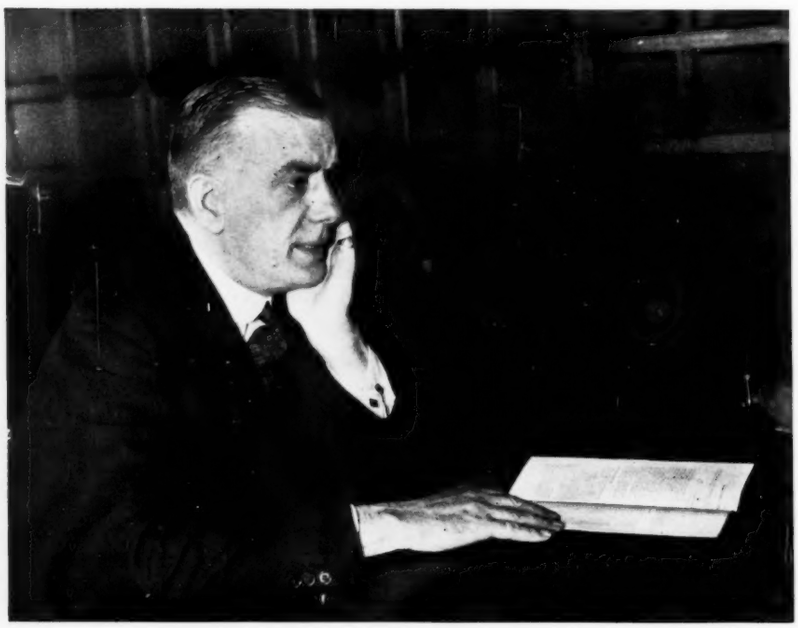
This recital of difficulties overcome and of precautions to be observed has not yet carried us beyond the bounds of the industry itself. If difficulties merely of our own making, and yielding to our own solutions, were all with which we had to contend, we should indeed count ourselves fortunate. As it is, however, many external handicaps are added to our own. If, for instance, we wish to import certain products of petroleum into any country, we first have to ascertain and comply with the appropriate specifications laid down by the fiscal or other authorities of that country. Each product has its specification—often sub-divided; and, since each country has a range of specifications differing in some degree from those of all other countries, the oil we manufacture, unlike the biblical leopard, has to change its spots according to the country of destination.

Room for Improvement Within the Industry

THE fact that oil can meet these varied requirements may substantiate its claim to be the most versatile of fluids—but there are limits to its capabilities. Scientifically, a given crude will yield a given range of products, each of which will most efficiently serve its intended purpose. Variations from that range impair efficiency—to say nothing of adding to cost; and our operations, as well as the interests of all importing countries, would be aided by the establishment of a definite series of specifications to which all customs would adhere. Conversely, and since international agreement may well be very remote, is there not room for improved working within the industry itself? Admitting the existence of as many specifications as there are importing countries, can we not narrow down their incidence by adopting standards to which each of us will work? I realize that the subject is hedged about with thorny difficulties—not least the different qualities of crude oils and of their products; but if they could be reduced to their smallest dimensions, we should have passed another milestone in our common task of cooperating and of effecting economies in cost which would be of benefit to producers and consumers alike.

In referring first among external difficulties to specifications, I have, of course, been treading delicately upon the edge of more contentious ground. Specifications are not an end in themselves. Primarily the handmaidens of industry, they have become increasingly the handmaidens of taxation—a topic on which, I learn with no surprise, you citizens of the United States have emphatic views.

Sir John Cadman, Anglo-Persian Oil Company.



Even America Outdone in Taxes

I DOUBT very much if there is any other industry in the world which bears such a load of taxation as that which has been laid upon oil. I doubt, indeed, if there are many industries sufficiently robust to withstand such a scale—for most commodities it would have been totally and immediately prohibitive. In 1931, a period of depressed conditions, low prices, and dwindling demand, state gasoline taxes in this country, I am told, reached the highest total ever recorded—over 500 million dollars. It has been further estimated that a total revenue of nearly 1½ billion dollars is received from the operation of the 27 million motor vehicles in the United States. Those figures, like so many of the other features of your country, are prodigious. No comparison from elsewhere can equal them in the immensity of their aggregate. In the matter of proportion, however—although I am far from boasting about it!—my own country and its taxation can outdo yours. The import duty levied on "commercial" gasoline represents about half its present retail price and something over twice its laid-down cost. The direct

annual tax on vehicles is £1 per horsepower. We possess a trifle of 1½ million motor vehicles, and we pay in our two forms of taxation £57 million. Each of your cars bears a charge for taxation of some $55 a year; each of ours pays over £35—or, say, three times as much. I hope, for the sake of all of you, that your government will remain content to leave us this invidious superiority.

For purposes of taxation, oil and motor vehicles appear, unfortunately, to be ideal subjects. A tax can so easily be levied on imports of oils or on quantities consumed. From a governmental viewpoint, its collection is simple; and its evasion is not sought by any reputable concern. The taxation of motor vehicles is equally simple and, perhaps, more difficult to evade. Oil and motor vehicles, moreover, are essential to modern life. In consequence, the government of virtually every country has turned to them whenever a gap in its revenues has required to be filled; and there has been little evidence of imagination as to the potential consequences on its revenues generally of attempts to fill the gap in that way.

The interest of governments in oil is, however, not restricted solely to fiscal aspects. At times, it occurs to the official mind that, let us say, the price of gasoline is too high. Oil operators may then find themselves invited to justify the price they charge. To extend such an invitation is to imply that if the justification is not acceptable, restrictive action may follow.

Oil Industry Asks Equitable Treatment

But gentlemen, have you yet operated under a government which, in a period of unremunerative prices, intervened to insure that you should earn a fair return? . . . Nevertheless, the one form of intervention should be the due corollary of the other. All around us, in times of prosperity, we see enterprises which consistently earn a high return. Their products may be no less vital to modern life than is oil; in most cases they lack entirely that element of hazard which always attends the search for, discovery, and exploitation of oil; and their products may differ from oil in that they are not derived from what is, inevitably, a wasting and a diminishing asset. Those hazards ought to be reflected in the income we pay to our investors. Otherwise, the investor will turn elsewhere, and pioneer work will come to an end.

In these matters of taxation and profits, the oil industry asks for nothing more than equitable treatment. Doubtless, oil will continue to be taxed; but let it be taxed reasonably. Doubtless, again, there will be periods when oil will make profits, and others when it will suffer loss; but let one be measured against the other, and do not let the profits of the industry be judged in the light merely of its most prosperous units, but in the light of those made by the industry as a whole in its efforts to supply the world as a whole with its requirements of an increasingly essential commodity. Above all, let us have an opportunity of demonstrating that an oil operator is not an individual whose bent of genius is towards an "infinite rapacity for taking gains."

I have often been tempted, in the past few years, to contrast the oil industry and its difficulties with the aggregate of the world's industries and their several problems. Our position, briefly, was that we were producing in excess of requirements. You all know the consequence: competition was intensified, and prices fell. Finally, however, we arrived at the conclusion that we should have no stability and no hope of ordered progress until we fitted the world's production to the world's consumption. In other words, we thought universally.

Oil "Politics" Should Be Universally Applied

I am well aware that self-righteousness, whether in an individual or an industry, is objectionable and a defect. Is it not possible, however, that the oil industry has set an example which, if followed by all nations and by all other industries, would do much to solve their difficulties? The problem of the world, in essence, is that consumption has fallen for reasons which we need not discuss, and that the potentialities of production are vastly in excess of current demand. In consequence, prices everywhere and for virtually everything have been forced down to utterly uneconomic levels. All nations, in order to protect their industries from ruinous competition, have erected barriers against the flood of unwanted imports—a procedure which, if it temporarily eases the situation of one country, reacts adversely upon another, thus failing entirely to add one iota to the prosperity of the world as a whole. Meanwhile, trade stagnates, industries are idle, nations go bankrupt.

If, however, what I might call the politics of oil could be applied to the world—to all its nations and all its industries—is it not possible that the greatest universal problem of the day might be solved? Consumption everywhere has decreased; competition is too keen; and prices contain no margin for gain. One possible step towards rehabilitation of trade is evidently the readjustment of supply to demand and the prevention of excessive competition by allotting to each country a quota of exports which it will undertake not to exceed. If such a step could be taken, a profit would be secured to all; and once the initial change from loss to gain had been effected, difficulties would melt away in the rays of a rising prosperity.

I realize full well that every form of obstacle hinders the taking of that step. Nevertheless, two or three years ago it appeared almost incredible that the oil industry would be able to solve its problems unless some Act of God intervened to destroy a quarter of its productive fields. Since then, we have travelled a long way towards the goal we set ourselves: and if the nations of the world would apply themselves to their task with the good will and elimination of suspicion, jealousy, and mistrust which we have applied to ours, there is little cause why, ultimately, each nation should not re-establish itself and its industries on a basis of lasting prosperity.

Strengthen International Oil Brotherhood

So much, gentlemen, for a glance at wider considerations. It remains only for me to return briefly to oil, and to consider where we now are and whither we should direct our steps. We can expect little help from outside. The economic world around us still lingers in the doldrums of bad trade. Its inactivity is reflected, for us, in declining consumption. We have offered all the hallowed inducements which normally stimulate trade, with no effect. Consumption remains a laggard, and the tastiest of carrots dangled before the donkey's nose has failed to accelerate its pace. What, then, can we do? I suggest that we can do nothing better than travel on the road we are now treading. Our need today is for more mutual understanding, more cooperation, more coordination of supply to demand, and an ever-increasing realization that, economically, we are no longer independent national units, but integral parts of a universal whole.

Already, we have achieved some measure of control over production, but it still remains an element of danger. We have improved our organizations and reduced our costs; but stocks are still too large. Despite various unstable factors, however, I know of no other industry which is so well equipped to take advantage of general trade recovery when it comes or which, by its own internal efforts, has definitely improved its trading conditions in the face of all forms of exterior disability.

Let us not be tempted, however, by better times, to relax our efforts; let us

(Continued on page 502)

See 10 Percent Drop in U. S. Demand

Economics Committee of Federal Oil Conservation Board Recommends Holding Refinery Output to 179,240,000 Bbl. for Six Months — A.P.I. Committee Estimates Decline at 11.7 Percent.

ANTICIPATING a decline of 20,159,000 bbl. or 10.1 percent in the market demand for motor fuel produced in the United States for the six months ending March 31, 1933, as compared with the corresponding period of the past year, the Volunteer Committee on Petroleum Economics of the Federal Oil Conservation Board, in a report prepared at the direction of Secretary of the Interior Wilbur which was presented at the annual meeting of the American Petroleum Institute, at Houston, Texas, November 15, recommended that the refinery output of the United States be held to 179,240,000 bbl. during this period. Crude oil requirements for the same time were put at 386,500,000 bbl. or 12.1 percent less than during the same six months of 1931–32.

The report of the Committee which was presented to the convention by the chairman, Dr. John W. Frey of the Department of Commerce of the United States, directed attention to the definite relationship between domestic motor fuel demand and the number of automotive units in service, stating that it was estimated that the number of motor vehicles registered in the country on January 1, 1933, would be less than 24,000,000 as compared with nearly 26,000,000 on January 1, 1932. Domestic demand for motor fuel for the six months ending March 31 next is estimated by the Committee at 166,300,000 bbl. or 7.6 percent less than in the same period of the past year while export demand is put at 12,600,000 bbl., a drop of 29.8 percent.

Estimates and Recommendations, U. S. Petroleum Demand, Supply and Stocks

Volunteer Committee on Petroleum Economics

(Thousands of barrels of 42 U. S. Gallons)

	Last Quarter 1932	First Quarter 1933	1932–33 Six Months Total	Total Same Period 1931–1932	Percent Change
Motor Fuel Requirements					
Domestic Demand	90,300	76,000	166,300	179,887	− 7.6
Export	6,500	6,100	12,600	19,172	−29.8
Total	96,800	82,100	178,900	199,059	−10.1
Suggested Stock Changes	−600	+6,840	+6,240	+16,964	−63.2
Net New Supply Required	96,200	88,940	185,140	216,023	−14.3
Sources of New Supply					
Imports	240	230	470	6,075	−92.3
Benzol	240	240	480	756	−36.5
Natural Gasoline as Such	2,550	2,400	4,950	4,058	+22.0
Non Refinery Sub-Total	3,030	2,870	5,900	10,889	−45.8
Refinery Output					
Natural Gasoline Blended	6,100	5,750	11,850	15,040	−21.2
Cracked Gasoline 21.3% Yield	40,880	37,820	78,700	87,052	− 9.6
Straight Run Gasoline 24.0% Yield	46,190	42,500	88,690	103,042	−13.9
Refinery Sub-Total	93,170	86,070	179,240	205,134	−12.6
Total New Supply	96,200	88,940	185,140	216,023	−14.3
Crude Oil Requirements					
Domestic Runs to Stills	192,400	177,000	369,400	421,474	−12.4
Exports	5,800	5,700	11,500	11,488	+ 0.1
Miscellaneous Use and Losses	2,850	2,750	5,600	6,711	−16.6
Total	201,050	185,450	386,500	439,673	−12.1
Suggested Stock Changes	−2,900		−2,900	+ 581	
New Supply Required	198,150	185,450	383,600	440,254	−12.9
Sources of New Supply					
Imports	5,550	5,450	11,000	23,617	−53.4
Domestic Production	192,600	180,000	372,600	416,637	−10.6
Total New Supply	198,150	185,450	383,600	440,254	−12.9
Daily Average U. S. Production	2,100	2,000	2,050	2,271	− 9.7
Suggested Motor Fuel Stock Levels	Dec. 31st				
Refinery Motor Fuel	47,330				
Other Motor Fuel	3,500				
Total	50,830				

Of the total demand for crude it is estimated that exports will require 11,500,000 bbl. and that miscellaneous uses and losses will account for 5,600,000 bbl., thus allowing under the Committee's estimate, 369,400,000 bbl. for runs to stills. The Committee advises that crude stocks be reduced 2,900,000 bbl. during the six months' period, pointing out that this is less than the proposed average production for one and a half days. In the apportionment of production the Committee suggests a daily average crude output of 2,100,000 bbl. for the final quarter of 1932 and of 2,000,000 bbl. for the first quarter of 1933.

Detailed figures of the Committee's forecast are presented in the accompanying table.

The forecast of the Committee on Refinery Statistics and Economics of the American Petroleum Institute, covering the same period as that of the Economics Committee of the Federal Oil Conservation Board, was presented to the convention by Albert J. McIntosh of the Standard Oil Company of New York. The two estimates, independently arrived at, showed rather close agreement, the A.P.I. Committee estimating the decrease in domestic demand for motor fuel at 9.5 percent and in exports at 32.9 percent and placing total requirements at 174,800,000 bbl. as compared with the figure of 178,900,000 reached by the Federal Oil Conservation Board's statisticians.

Crude oil demand is estimated by the A.P.I. Committee at 383,550,000 bbl. with runs to stills set at 363,150,000 bbl., both figures being slightly lower than those prepared by Dr. Frey and his associates. In explanation of the heavy decline in motor fuel exports the A.P.I. Committee points out that this is due to the imposition of an excise tax on imports to the United States which has shifted the export business formerly done by American refiners to other lands. In concluding its report the A.P.I. Committee says:

> It would appear that the industry will most likely experience the lowest relative consumption during the period of this forecast that it has felt for a number of years. The daily crude run to stills should be reduced approximately 100,000 bbl. from present levels. These are the two most important conclusions to be drawn from the reports and it depends entirely upon the individual company executives whether the industry shall continue to keep its present statistical advantages and show improvement.

Further British Price Advance to Be Delayed

Public Sentiment and the American Situation Appear to Offer no Justification for a Further Advance in British Petrol Prices. Government Tax Reduction Hoped For.

DISCUSSION has again been taking place in the London Stock Exchange of a possible further increase in petrol prices in the British market. The idea probably had its genesis in the fact that Lord Bearsted, chairman and managing director of Shell Transport and Trading Company, and Sir John Cadman, chairman of Anglo-Persian Oil Company, were both in New York. As far as can be gathered here, the visit of British oil leaders has not been made the occasion for anything more than informal talks. There is otherwise no change in the situation or outlook to indicate the probability of a change in British prices, and the statistical position of the industry in the United States and elsewhere is still considered adverse rather than favorable to a higher level.

A strong impression prevailed among retailers until early last month that another rise was imminent. The immediate increase which followed the agreement with Roumanian producers, combined with the belief that the British market was still not satisfactorily remunerative, led many persons without inside knowledge to believe that distributors would take immediate steps to exploit their stronger position by raising selling prices to a definitely profitable level.

This assumption created something of a scare among petrol pump proprietors, and was reflected in a rapid rise in Stock Exchange prices for oil shares, especially those most likely to benefit by high selling prices in this country.

Anticipations of a further advance have so far proved groundless, and their effect on the stock market and on the mentality of retail distributors has largely disappeared. They were, indeed, never well based, for the 3d. increase was equal to over 30 percent on the former quotation for No. 1 petrol, after deducting the 8d. per gallon tax, and it would have been more reasonable to assume that after such a substantial movement in the upward direction the importing groups would await reactions to the change before putting a fresh advance into operation.

Among consumers of petrol, definite reactions to the new price level are more in evidence among private car owners than among users of commercial spirit.

Commercial users take about 60 percent of the total petrol sold in Great Britain, and something like 90 percent of the spirit supplied to them is sold in bulk or under contract. Moreover, the casual buyer of commercial spirit generally has of necessity to continue steadily in operation, whatever his fuel costs, and owing to the lower basic price of commercial grade petrol he has little scope for saving money by buying cheaper brands. These factors explain the small effect so far produced on sales of commercial spirit by the latest rise in prices.

Experience among individual distributing groups of the reaction of private motorists has varied considerably. As expected, there has been a search for cheaper petrol by a section of the motoring public, so that cheap brands, some of them without any connection with a well-known distributing group, are finding a readier sale. There is also some evidence that the prospect of higher running costs has led to the laying up of cars. At this season of the year a decline in motoring always takes place, and it is difficult to determine how far this seasonal tendency has been accentuated by the petrol price increase. Information drawn from a wide enquiry suggests that fuel costs have been the determining factor in the laying up of a proportion of private cars, but that the resulting loss of petrol sales is not likely to be substantial.

Higher prices, however, have caused motorists generally to give more attention to the petrol they are using. This is the only explanation which can be offered for the changes in demand for different brands of spirit selling at a common price. Some companies state that the demand for their products has expanded appreciably since their prices were advanced, although these larger sales must obviously have been obtained at the expense of other distributing groups.

A further increase in the price at a later date must be regarded as an open question at the moment. It has been widely suggested that a higher level might be brought into operation with the object of forcing the British Government to reduce the petrol tax. The 8d. per gallon tax, equivalent to nearly 70 percent on the net sale price of No. 1, is admittedly exorbitant. On the other hand the British Government, even if it were at any time likely to submit to *force majeure* of this type, is far too intent on balancing revenue and expenditure to reduce taxation substantially. In any case, this phase of the question, as affecting commercial petrol, must be regarded as doubtful for the present, for official hints have recently been thrown out of the possibility of steps to recast the taxation of commercial road vehicles.

Two of the principal factors which will determine the question of a further price rise are public opinion in this country, and conditions in the United States industry.

Up to the present, the combine companies in the British market have carried the public with them in making price changes. They have done this by changing quotations at the right moment, and by judicious publicity. Motorists have been inspired with considerable confidence that they have been getting a square deal, and the same has applied to public opinion in relation to road transport costs. It is unlikely that the distributing organizations would sacrifice this public goodwill by raising prices without some show of justification.

This justification does not appear to be forthcoming at the moment from the price structure in the United States, recent changes in American petrol and crude oil prices failing to give any definite indication of a long-term trend one way or the other. The course of proration developments is being watched closely in British oil circles, and due account has been taken of the advance in the direction of curtailing output since the latter reached its peak in August 1929. Recent news, however, suggests that there is still some divergence of individual policy among big American producers, as well as among political elements.

1932 Earnings to Show Marked Improvement

Third Quarter Statements Disappointing in Relation to Excellent Indications Provided by Second Quarter Results. Stringent Production Control Necessary.

By C. C. Bailey

THE recent annual gathering of the American Petroleum Institute at Houston, Texas, has served to fix the attention of the industry, at least momentarily, upon the broad question of its economic status and outlook. From the financial point of view there is no question but that the 1932 showing will prove to be substantially better than that of 1931, particularly with respect to earnings statements. The oil business is highly seasonal because of the effects of winter weather upon gasoline consumption in many of the country's most densely populated areas where the volume of business averages the highest. For this reason the first and fourth quarters of the calendar year are normally much less profitable than the second and third, and with very little provocation write their results on the wrong side of the ledger. The third quarter usually reaches a somewhat higher peak than the second, since it includes the vacation months of July and August.

Insofar as the companies included in the subjoined tabulation are representative of the industry, the comparative earnings record portrayed in this exhibit approximates the industry's showing for the year 1932. One obvious, but unavoidable deficiency in such a study is the omission of a number of the largest and most important companies, notably the Standards of New Jersey and Indiana, The Texas Corporation, Consolidated Oil and Gulf Oil. These companies issue financial reports once a year only, and their 1932 record will not be published until April or May of 1933. Other omissions include Sun Oil, whose semi-annual report is not susceptible of the type of analysis employed, and Ohio Oil which issued no quarterly reports in 1931 with which to compare this year's statements. Similar information, covering the multitude of small units operating in all sections of the country and in one or more of the main departments of the industry, is not available.

The aggregate results shown in the table, however, do probably indicate in a fairly accurate general way the course of the industry as a whole, but any argument by analogy as to the probable record of any specific company would, of course, be unwarranted. The most striking feature of the compilation is the contrast between the aggregate net earnings of the first nine months of this year and the aggregate net loss of more than double that amount sustained in the similar period of 1931. The sharp improvement was caused by the reversal of the downward trend of the price structure following successful curbing of overproduction, particularly in Texas and Oklahoma. It is almost needless to say that the amount of curtailment achieved would not have been adequate, had not the industry been favored by a comparatively well maintained demand. In fact, 1932 has been the first year to show any appreciable decline in this respect, and even a 15 percent drop from its all time peak should be regarded as a great blessing in comparison with the drastic deflation of such lines as steel out-

Comparative Interim Earnings Reports

Company	Net Income After Charges 1932 3rd qt. (000)	1932 2nd qt. (000)	1931 3rd qt. (000)	9 months' earnings 1932 Net (000)	1932 Per Share	1931 Net (000)	1931 Per Share	Present Dividend Rate per share per annum	Stock Market Prices Recent	Year Ago
Amerada Corp.	$405	$327	d $490	$958	$1.25	d $968	d$1.13	$2.00	20	16
Atlantic Refining	1,063	2,750	1,242	4,248	1.58	d 2,771	d 1.03	1.00	16	12
Barnsdall Corp.	d 109	30	d 723	d 469	d0.22	d 2,539	d 1.12	...	5	7
Colonial Beacon	d 710	255	d 17	d 1,830	d1.27	d 1,881	d 1.30	...	11	9
Continental Oil	358	1,616	d2,955	102	0.02	d 9,484	d 2.00	...	6	7
Mid-Continent Pet.	d 212	304	d1,253	d 944	d0.51	d 4,155	d 2.24	...	5	7
Panhandle Prod. & Ref.	d 63	d 32	d 94	d 242	d1.74	d 389	d 2.50	...	1	1
Phillips Petroleum	1,187	1,324	264	374	0.09	d 2,410	d 0.57	...	6	7
Seaboard Oil	237	194	54	612	0.49	72	0.06	0.40	17	8
Shell Union Oil	d 163	d 93	d2,682	d 3,098	d0.36	d 23,641	d 1.94	...	6	5
Simms Pet.	d 45	d 60	d 658	d 332	d0.67	d 2,358	d 2.95	...	6	5
Skelly Oil	d 229	d 235	d 284	d 272	d0.78	d 1,942	d 2.41	...	4	4
Standard Oil of Cal.	5,097	3,986	6,298	12,013	0.92	11,942	0.91	2.00	26	32
Texas Pac. Coal & Oil	d 30	93	d 397	386	0.44	d 1,087	d 1.21	...	2	3
Tide Water Associated	1,396	1,572	1,253	3,495	0.09	176	...	...	4	4
Union Oil of Calif.	1,250	550	1,300	2,750	0.63	3,200	0.73	1.00	11	15
Totals (16 companies)	$9,432	$12,071	$858	$17,751	...	d$38,235	...	...	146	142
Totals (Excluding Std. Oil of Cal.)	4,335	8,085	d5,440	5,738	...	d 50,177	...	...	120	110

d Deficit.

put, automobile production, building and construction, and railroad car loadings. The important point in this connection is that the decline in gasoline consumption is continuing and is of sufficient proportions to make further moderate reductions in operations imperative if the prospect for a good year in 1933 is to be assured.

Probably the second most striking feature of this study is the fact that although the second and third quarters of this year fulfill expectations of substantial improvement over the third quarter of 1931, the third quarter reveals a definite and fairly substantial decline from the second. Since the normal trend would have been toward a higher third quarter, there is indicated here a loss of ground in the economic recovery of the industry, which gives special point and importance to the warnings of many of the industry's leaders that even greater vigilance and more stringent control of output and operations should be achieved in the coming months. The drop in earnings from second to third quarters is more striking in the totals which exclude Standard Oil of California, whose record during the period covered has been unusually good and whose comparative size results in a somewhat disproportionate effect upon the totals for the entire group. This California company made an exceptional recovery in the third quarter of 1931 from its showing of the previous quarter.

The two columns of stock market prices present an interesting and somewhat anomalous sidelight upon the course of the industry over the past year. In view of the marked change in the nine months earnings record, the change in market quotations is so slight as to indicate no reflection or recognition of the former. Nevertheless, there are two factors to be considered in relation to oil share prices which indicate that the improvement has not been without effect. If the comparison were made between the low share prices of December, 1931 and the high levels of the past September just after the second quarter oil statements had been published, a fairly substantial gain would have been revealed. Furthermore, the oil shares have fared much better than practically all other departments of the list, as witnessed by the fact that the Dow-Jones industrial averages have been recently approximately 30 to 35 percent below their levels of the latter part of November, 1931. The only possible influence that could have made the oils perform better than other groups is the fundamental improvement that has taken place over the past year. The oil industry has indeed been the first to rally from depression and right now faces the opportunity to assure continuance of that leadership in 1933. We have faith that it will not fail to do so.

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Synthetic Resins from Petroleum

Abstract of an Article by C. A. Thomas and W. H. Carmody in Industrial and Engineering Chemistry on Treating Cracked Distillate to Produce Commercially Valuable Resins.

FORMATION of gummy deposits in distillates has long been a problem in the petroleum industry, but while the manufacturer of gasoline must continue to use whatever means he can to prevent the formation of these guns, C. A. Thomas and W. H. Carmody have worked out a process for converting petroleum into precisely the gums and resins which the petroleum refiner wishes to avoid. Their object, of course, is not to make gasoline but a new synthetic resin which has many interesting properties and is now being used in the paint, varnish, and plastic industries.

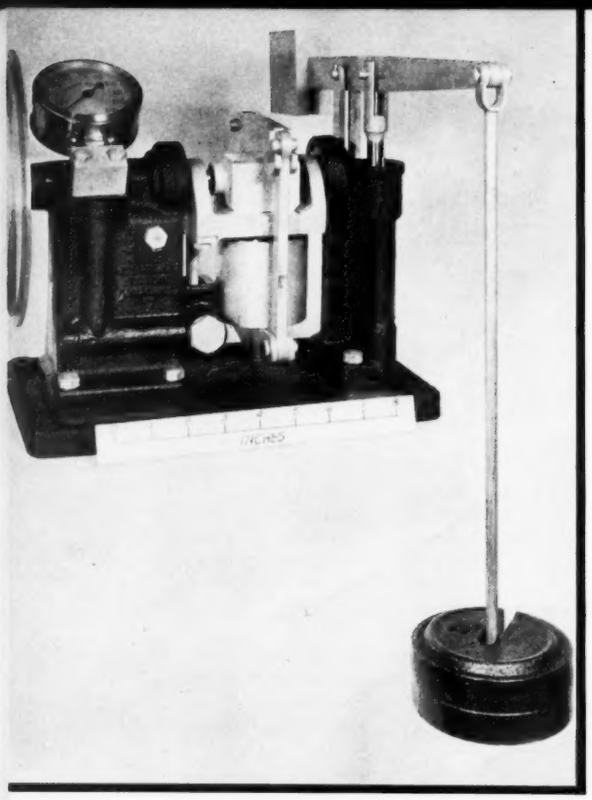
The new industry is based on the fact that when a cracked distillate containing hydrocarbons of varying degrees of unsaturation (such, for example, as olefins and diolefins) is treated with a metallic halide the reaction results in the formation of both condensation and polymerization products that constitute a synthetic resin having valuable commercial properties. Under ordinary refinery conditions both straight chain and cyclic diolefins are formed from charging stocks of various gas oils; but most of these diolefins polymerize to aromatics and only a small percentage of unchanged diolefins is found in the distillate. Therefore, when a high yield of the new resin is desired the distillation process must be conducted so as to obtain a distillate rich in olefins and diolefins. Such a distillate is obtained by cracking at a high temperature and a low pressure.

Characteristics of a Suitable Distillate Yielding Resin

Boiling range, deg. C.	23–18
Specific gravity at 20 deg. C.	0.84–0.86
Aromatics, percent	40–50
Unsaturates, percent	45–60
Bromine number, mg. per gram	1003
Refractive index	1.416–1.517
Molecular weight, average	150

In handling such a distillate it must be removed from the hot reaction zone as soon as possible, and spontaneous polymerization prevented by diluting it with benzene or toluene. This done, the mixture is cooled and anhydrous aluminium chloride is added in a thin continuous stream at the rate of about two grams per 100 cc. of distillate. The liquid heats up, becomes dark reddish brown in color, more viscous, and increases in specific gravity due to the polymerization and condensation of the unsaturates. Next, the reaction mixture is treated with alkali to break down the aluminium chloride complex, leaving the resin in solution. The solution is distilled under reduced pressure to remove the solvent, leaving behind a hard, amber colored resin. Various types of resin can be made by controlling the conditions.

The product is a hard, brittle material soluble in practically all hydrocarbon solvents, linseed oil, China wood oil, etc.; with the latter it makes a varnish that dries more rapidly than any type of resin heretofore known. It mixes well with light colored pigments. When a film of the varnish is baked at 220 deg. Fahr. for one hour it becomes insoluble in its original solvents, thus resembling bakelite. The yield of finished resin may be as much as 28 percent.



Almen extreme pressure lubricant testing machine.

A. P. I. Technical Papers

Technical Papers Presented at A. P. I. Annual Meeting Cover All Phases of Production, Refining and Use of Petroleum as Modified by Changing Requirements of Consumers.

CONSIDERATION of the petroleum technologists attending the Thirteenth Annual Meeting of the American Petroleum Institute at Houston, Texas, was directed to a variety of problems ranging from those arising at the well, problems of transportation, refinery practice and finally to adaptation of the finished product to the needs of modern consumers. Road tests with gasoline and lubricants and careful examination of the requirements of oil burners determined the exact status of the present demand for these petroleum products.

Tapered Flow Columns

IN DISCUSSING the merits of tapered flow columns as applied to oil wells J. T. Haywood of the Barnsdall Oil Co. examined the pro and con of tapered holes *versus* holes of uniform diameter. For tapered holes it has been claimed that the rate of flow of gas-lift wells is increased. These claims have been based largely on theoretical grounds but when put to the test of comparative experiment with other forms of flow columns no superiority of the tapered columns could be detected.

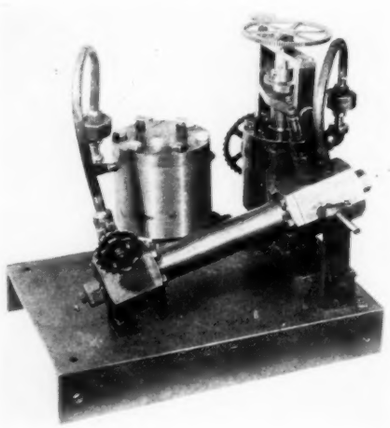
Kettleman Development

MANY interesting and difficult problems have been met with in the Kettleman field. As reviewed by E. C. Gaylord of the Standard of California one of the most interesting is the question of handling high head waters by heavily weighted mud or by drilling under pressure. Experience shows that either method can be used successfully; if care is taken not to waste the mud, the mud-pressure system results in a slightly lower overhead cost. Perhaps the most difficult problem confronting the Kettleman operators has been the regulation of gas production and disposal as required by the California gas conservation law. Under pressure of this law producers have been led to recognize the advantages of cooperative marketing.

Economies in Drilling

WHEN well costs for 8,000 ft. wells exceeding $250,000 are not uncommon the question of economic drilling becomes paramount. Some of the ways to economize were pointed out by Bruce Barkis and R. D. Copley of the Rio Grande Oil Company. Frequently the largest single item is casing. Economies in this item may be effected by restricting casing to the zones most in need of protection; also by the use of combination oil and water strings and combination liners with judicious use of cement. Other economies are possible by proper choice of hole, the right drilling bits, straight hole practice, intelligent coring and formation testing.

Voscosimeter and liquid density cell.



Pressure Maintenance

PROF. WM. N. LACEY of the California Institute of Technology pointed out that the pressure of gas in contact with the oil has other values than to supply energy for forcing the oil to and out of the well. These other values are due to the fact that the gas dissolves in the oil, which lowers its viscosity and surface tension to a remarkable extent—thus promoting drainage to the well, and markedly increasing its volume and its A. P. I. gravity. For this reason it is desirable to retain original gas pressures. Repressuring succeeds best when the oil is in thin layers because in such cases the gas is rapidly dissolved by the oil.

Coating Tests

A. P. I. COMMITTEE on Corrosion of Oil Field Equipment under the chairmanship of G. N. Scott made its third progress report on the condition of the various experimental pipe coatings which it has had under observation. These tests, which include 19 different coatings under a wide range of field conditions are to be continued and are expected to give data from which actual pipe life and actual prolongation of pipe life by various types of coatings may be calculated.

Nitrobenzene Process

THE enviable eminence of Pennsylvania crudes as a source of superior lubricating oil has been shaken by processes by which first class lubricants can be obtained from residual or overhead material from Mid-Continent crudes, or from coastal, mixed base or paraffinic crudes. Such processes include the use of sulphur dioxide as a selective solvent by which the distillates are freed from undesirable constituents. According to S. W. Ferris and W. F. Houghton of the Atlantic Refining Company, nitrobenzene is the most satisfactory of all commercially available selective solvents for this purpose. By its use lubricating motor stocks equal or superior to the Pennsylvania product can

be obtained; other oils of unusual properties for special purposes may also be readily prepared.

Tanker Corrosion

FROM a large number of drill tests on the hulls of oil tankers it appears that the average rate of corrosion is about 0.006 inch per year on the surface exposed to oil. But, as N. B. Musser of the Sun Oil Company pointed out, this rate accelerates with the age of the vessel so that in 12 years a tanker in gasoline service would lose 30 percent of the thickness of ½-inch plating exposed to oil on both sides. Preventive measures include re-design of hull structures to secure a more uniform life for all structural members and the use of cheap coatings applied by the crew at frequent intervals.

Coke as Fuel

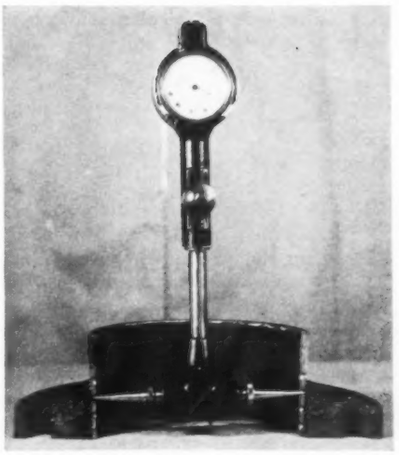
AS DESCRIBED by O. F. Campbell of the Sinclair Refining Company of East Chicago that refinery was faced by an inadequate power plant and a surplus of petroleum coke breeze for which no ready market could be found. New boilers were designed and built for burning the coke breeze along with surplus refinery gas and unmerchantable fuel oil. The speaker gave a well illustrated description of this novel boiler furnace and the measures necessary to protect the furnace walls from the caustic content of the coke.

Refinery Corrosion

ONE of the many exigent corrosion problems encountered in refinery operation is presented by certain Texas crudes described by S. S. Shaffer of the Humble Oil and Refining Company. These crudes are contaminated by chlorides of calcium and magnesium which are hydrolyzed by steam at high distillation temperatures and give rise to free hydrochloric acid which is very destructive to iron stills and condensers. This disagreeable condition was in large part ameliorated by injecting into the vapor stream gaseous ammonia from pressure drums containing liquid ammonia. Iron losses from condensers were reduced by 80 to 90 percent through the use of about three pounds of ammonia per 1000 bbl. of oil.

Refinery Gadgets

THE matter of small but exceedingly useful accessories about the refinery was interestingly treated by several speakers. F. B. Gilliams described a thread checking gage for checking the internal thread taper of oil pipes as an insurance against leaky joints. J. A. McMonagle, C. A. Pines and J. F. Williams gave an illustrated description of an automatic internal tube



Gage for checking internal thread taper.

gage for measuring the internal wear of still tubes. A continuous laboratory method for acid treating of light oils was described by E. W. Zublin, by which the laboratory test is really made to parallel the plant operation. Mr. Gilliams described his invention of a plug protector for cracking-still tube headers. Walter Samans of the Atlantic Refining Company showed how corroded lower sections of a riveted bubble-tower shell were replaced without removing the tower from its location.

Edeleanu Process

THE Edeleanu process in its original form consists in treating petroleum hydrocarbons with liquid sulphur dioxide and in this form has found wide use. As shown by O. P. Cottrell this process has been improved by using sulphur dioxide jointly with benzol. This mixture has an increased solvent power which is especially valuable for producing finished motor oils with markedly flat viscosity-temperature curves. By the new modification Mid-Continent cylinder stocks can be upgraded to Pennsylvania oils regarding viscosity index and gravity, and generally their carbon residues are considerably below those of Pennsylvania origin.

Equipment Inspection

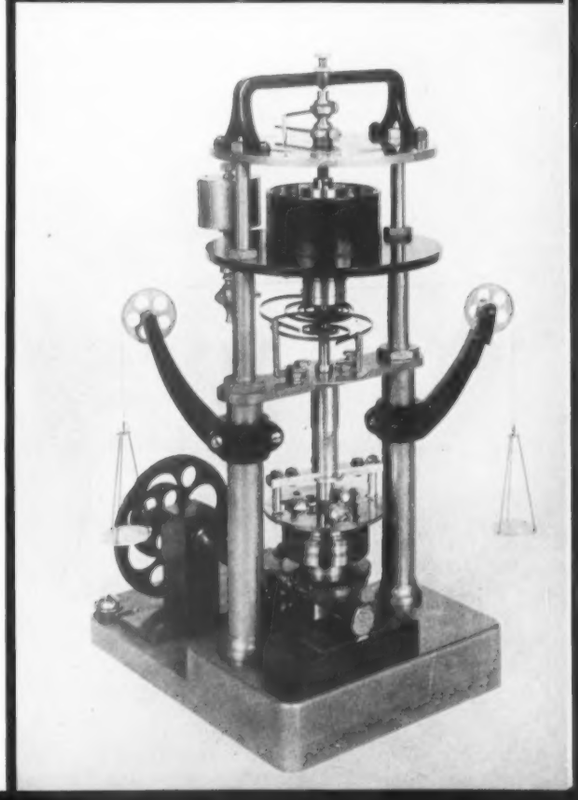
T. D. TIFFT of the Sinclair Refining Company gave an interesting outline of the system of refinery inspection developed by that concern. Each plant has a resident inspector who reports to a chief inspector. The function of this inspection service is to check up not only on the safety of operations at the plant but also to collect data on the rate of wear or deterioration of equipment. This last feature is especially useful because when rates of deterioration are known the probable date of shutdowns for repairs or replacements can be approximately predicted. This allows the management to make preparations in advance, and since requirements can be foreseen it is unnecessary to tie up much capital in reserve stocks in the storehouse. The inspector's data are also of great use to the engineering department.

Extreme-Pressure Lubricants

IN COOPERATION with the lubricants research subcommittee of the Society of Automotive Engineers the U. S. Bureau of Standards undertook a comprehensive study of the problem of extreme-pressure lubricants. This study has become desirable from the increase in the horse-power of automobiles without corresponding increase in the size of gears with resulting higher pressures between moving parts, which again imposes new demands on the manufacturers of lubricating oils. The report on this research, submitted by O. C. Bridgeman of the Bureau is a progress report on various types of lubricant testers that have been developed. When completed the work should show either that different oils are arrangeable in a definite order or the order of the oils as regards load carrying capacity will be found dependent on one or more identifiable operating conditions.

THE present trend in automotive design, especially the introduction of new rear axle gears, demands a prompt and satisfactory solution of the extreme-pressure lubricant problem. This involves the acceptance by both the petroleum and the automotive industries of a stand-

Friction machine constructed by American Instrument Company.



ard laboratory method for determining extreme-pressure characteristics and the establishment of a system for rating lubricants in terms of load-carrying ability similar to the "octane number" system now in use for rating motor fuels. H. R. Wolf and H. C. Mougey of the General Motors Corporation stressed the point that before new gear designs can be adopted for quantity production by the automobile manufacturers the petroleum industry must make extreme-pressure lubricants generally available to the motoring public. Means of characterizing such lubricants have been found by these two authorities in the Almen oil-testing machine; oils which pass this machine are satisfactory in load-carrying capacity and others which fail on the Almen machine are found to fail in practice.

Knock Ratings

IN 1932 the Detonation Subcommittee of the Cooperative Fuel Research Committee under the chairmanship of C. B. Veal, secretary of the Society of Automotive Engineers, assisted by a large number of oil men and motor experts, made a very extensive series of road tests with most of the standard makes of cars and a representative series of commercial gasolines. The object of this ambitious project was to work out a standard road test by which the knocking characteristics of gasolines could be reliably determined. This work proved successful in that a reliable standard procedure was arrived at for rating fuels under actual road conditions. Having thus obtained a significant road rating for the fuels the next step was to develop a standard laboratory method which would be correlative with the road test. This problem was also solved satisfactorily and the Committee has been enabled to develop a laboratory method by which the knocking characteristics of gasolines may be accurately determined.

Viscosity and Friction

IN THICK-FILM lubrication viscosity plays an important part but in thin-film lubrication comparatively little has been known about the effect of viscosity. It seems to have been proved that where there is no wedging effect of the oil film, friction is independent of viscosity, and as now reported by O. C. Bridgeman and associates of the Bureau of Standards where wedging action on the oil film is present the coefficient of friction depends very markedly on viscosity. When the coefficient of friction is plotted against the product of viscosity and speed, all points relating even to oils widely differing in viscosity lie on a single curve. The Bureau is redesigning its friction machine to simplify the procedure.

Vapor-lock

PREVIOUS investigations on vapor-lock at the Bureau of Standards consisted mainly of laboratory tests. H. S. White and F. B. Gary of the Bureau conducted a series of road tests with about 50 cars, using a fuel of low vapor pressure. These tests have shown that the Reid vapor pressure of the fuels that can be used in the main fuel tanks of the cars at various atmospheric temperatures is of major interest. A practicable formula for determining liability to vapor-lock is:

$$t_a + dt = 259 - 140 \log p_r$$

where t_a is the temperature rise above atmospheric in the fuel system in which vapor-lock occurs (in deg. F.), and p_r is the Reid vapor pressure. The speakers note that the newer models of cars do not vapor-lock as easily as the old ones.

Furnace Oils

S. B. ECKERT and A. E. Pew, Jr., of the Sun Oil Company made a survey of the trend of fuel oil burner design, the present position of gas oils with respect to economic outlets, and the economic need of burner types that will take oils not currently in use. The data show that the trend in furnace design is clearly toward mechanical draft so that heavier oils may be successfully used. From the standpoint of the oil producer, who is also a gasoline producer, it is much to be desired that burner development be carried to the point that would give a free outlet for cracked gas oils which have a heavier gravity, a higher carbon content and a greater heat value than uncracked oils.

Utilizing Fuel oils

R. P. RUSSEL and W. P. Hanks of the Hydro-Engineering and Chemical Company reported on a study of the fuel oil situation. One obvious fact of the situation at the present moment is that stocks of gas oil and fuel oil are high and a greater outlet for these products is a desideratum. Such outlets might be found in an intensive effort to dispose of residuums for secondary road construction, the education of large-power producers to the use of heavier residual fuels and cracking to higher yields of lower octane number gasolines and adding lead to meet octane number specifications.

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Tax Relief and Interstate Compact Advocated

By W. C. McDuffie

Receiver, Richfield Oil Company

I CONSIDER the two most outstanding problems now facing the oil industry are: First, the creation of some agency looking towards securing uniform development and curtailment laws; and second, the reduction of oil industry taxes to a point comparable with other businesses. The first problem can best be met through interstate compacts which method seems possible under existing laws and such compacts should have in view uniform laws relative to drilling and production as well as ratable takings of crude from various states in accordance with their proven reserves. The second problem can only be met by awakening the interest of every petroleum product user to the amount of tax he is paying and enlisting his aid in demanding that there be a reduction of our ever increasing tax burden.

(Mr. McDuffie's comment on the problems facing the oil industry was received too late for inclusion with others in the November issue of WORLD PETROLEUM—EDITOR.)

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Petroleum and Policy

(Continued from page 495)

watch production with a judicial eye; continue to forecast demand; endeavor to balance the two; and maintain the closest contact in the field of international export. Let us gain a greater sympathy with one another by more frequent meetings—there is, I am sure, no better way of developing feelings of mutual confidence and good will, remembering always, however, that confidence must be merited before it is begotten. There is a brotherhood among oil men of all countries: let us strengthen and cement it by all the means we have, so that our industry will stand united as an exemplar of the benefit to be won by international accord.

Roumanian Oil Interests Reach Agreement

Decide Upon Quotas Acceptable for Larger Producing Companies and for the Smaller Company Group—Expect Plan to Begin Operation Shortly.

BUCAREST, ROUMANIA, NOVEMBER 21

AFTER much delay a plan has been worked out for the allocation of Roumanian oil production in accordance with the international agreement the general terms of which were fixed at the conference held in Paris in September. According to this plan the larger Roumanian companies, Astra Romana, Steaua Romana, Romana Americana, Unirea, Colombia, Concordia, Credit Minier and Prahava, will have an authorized output of 1400 carloads of petroleum daily. The smaller companies will have an allowance of 350 carloads to be divided among themselves as they may decide. This represents a monthly production of roundly 4,000,000 bbl. or about 80 percent of the present rate, the figure for October being about 5,110,000 bbl.

Oil circles here feel that this arrangement meets the requirements of the local situation as well as the provisions of the international agreement. It is believed that it has every chance of success and will remove the threat to international stability arising from the fear that Roumania might not be able to comply with the terms of the agreement because of internal difficulties in allocating production and export quotas. C. Osiceanu, head of the oil industrialists organization, has gone to Paris where, it is understood, a meeting of the international committee is to put the final touches on the details of the agreement covering the handling of Roumanian oil.

In consequence of the slowness with which arrangements progressed in Roumania and the objections raised to the various plans suggested for the allotment of quotas, considerable skepticism as to the outcome of the earlier deliberations was created and the representatives of the international group finally were moved to send a telegram urging that the Roumanian companies display some evidence of an intention to come to an understanding. Following this message the proposed basis of restriction was placed before the individual oil companies with the request that they return an answer by November 12. It is as a result of this referendum that the plan was approved at a meeting held November 20.

The special committee of the Roumanian Oil Industrialists dealing with the subject of production consisted of Messrs. Matasaru (Steaua Romana) and Margulius (Sondrom) with Mr. Moriatti of the Petrol Bucuresti refinery as secretary. The committee dealing with the home market situation included Messrs. Marinescu (Concordia) and Sain (Redevanta), while export was dealt with by Messrs. Gartner (Astra Romana) and Ficsinescu (Colombia). The members of these committees, with C. Osiceanu as chairman, formed a central committee for handling the whole subject of the regulation of production and export.

Of the other matters involved in the international agreement that of the price to be paid by the international group for purchases to be made from Roumanian companies was determined at the meeting held last July when it was arranged that for the first three months of the agreement prices should be on the basis outlined in the accompanying table.

It is stipulated, however, that prices in all cases are to be 30 percent above the f.o.b. Constanza prices ruling on September 21, 1932.

At the meeting in September it was provided that the agreement should come into force on the first day of the month following the date of final agreement between the several parties. It is hoped and expected, therefore, that it will be in full operation by January 1 next. Even those local producers who originally opposed the idea of restriction through international agreement have come to see the advantages of the proposed arrangement, especially since the addition of the clause guaranteeing a price for products 30 percent above the Constanza price of September 21. It is realized that failure to consummate the agreement would result in a disastrous drop in both crude and product prices and this fact has been put before the Roumanian producers in no uncertain terms.

It is interesting to note the participation of the principal Roumanian companies in the export trade of the country during the "as is" period, that is from July 1, 1931 to June 30, 1932. Steaua Romana, a Roumanian company controlled by Anglo, French and Roumanian interests, and Astra Romana, controlled by the Royal Dutch-Shell group have 49.24 percent of the export market. These figures for the various products are shown by the accompanying tabulation.

Prices for Roumanian Products

Standard Roumanian Product	Price to be paid
Light Benzine	Fob. Gulf price of 64/66 375 c.p. gasoline
Heavy Benzine	Fob. Gulf price of U. S. Motor gasoline less 5/– (gold) per metric ton
Kerosene	Fob. Gulf price of 41/43 prime white kerosene less 27/6 (gold) per metric ton
Gasoil	Fob. Gulf price of 30/32 translucent or 30 plus translucent gasoil less 12/3 (gold) per metric ton
Fueloil (pour-point + 10 deg. C)	Fob. Gulf price of U. S. Grade C bunker fueloil (cargoes) less 1/– (gold) per metric ton

Roumanian Exports July 1931–June 1932

Company	Gasoline tons	Kerosene tons	Gas-oil tons	Fuel oil tons	Total tons	Percent
Steaua Romana	368.326	172.640	170.232	331.701	1.042.899	24.65
Astra Romana	363.316	206.312	142.997	327.703	1.040.328	24.59
Romana Americana	231.315	204.123	147.662	133.945	717.047	16.94
Unirea	133.566	33.186	93.564	61.461	321.777	7.61
Redeventza	105.040	100.956	59.138	11.803	276.937	6.55
Concordia	93.277	84.327	36.886	33.220	247.710	5.85
Colombia	58.247	60.301	32.298	6.277	157.123	3.71
Petrol-Bucuresti	57.710	64.815	12.524	18.909	153.958	3.64
Pallas	67.127	45.730	22.646	.....	135.503	3.20
Credit Minier	51.818	17.738	9.503	9.242	88.303	2.09
Petrol Block	7.950	220	110	.....	8.280	0.20
Other Companies	14.880	5.212	12.125	8.941	41.158	0.97
Total	1552.572	995.562	739.687	943.202	4231.023	100.00

California Tests Cause Excess Production

Flow Tests for Determining Allowable of Various California Fields Brought Production in that State Well Above 440,000 bbl. and Have Subsequently Been Discontinued.

By R. E. Allen

LOS ANGELES Basin fields of Playa del Rey, Santa Fe Springs, Long Beach, Huntington and possibly two more fields have undergone extensive and accurate flow tests to determine potential under normal conditions as a basis for the allotment of allowables. Tests which have increased the state's production above the 440,000 bbl. per day assigned to California were discontinued in November and it is hoped that the confidence inspired by a re-allotment of allowable production will be such that it will off-set the harm done by excessive production resulting from the tests. More effective curtailment resulting from the tests will, it is hoped, serve to keep California production well within the bounds of market demand during the coming winter.

Results of the test to date show that the 196 wells of Playa del Rey established a test potential of 16,760 bbl. per day in comparison with the Umpire's potential of 17,550. At Santa Fe Springs the 550 wells tested established a potential of approximately 79,100 bbl. per day as compared to the Umpire's potential of 78,600 bbl. per day for the same wells. All the fields to be tested have passed from the flush to the settled stage of their existence since their last flow test in February 1930 and it is through this transition that the estimation of potentials is particularly difficult and this was an important factor in their selection to be tested. The ultimate aim of these flow tests was, of course, the accomplishment of more effective and more equitable curtailment in the fields and for the fields.

The necessity for occasional potential tests arises from the fact that in California as elsewhere production allotments depend largely upon individual well potentials and the monthly potentials established by the Umpire's office on the basis of technical data carry added weight when supported and verified by demonstrative tests of actual production.

The determination of potential production and its use in proration is subject to rather stringent rules in California. Proration potential of a well is considered to be its average daily production when produced under normal methods and according to good operating practice for a period of at least one month. Similarly, field potentials properly express the average daily amount of oil which the field could be depended upon to produce at current prices for any specified month.

Following considerable preparation and planning designed to provide for a uniform and simultaneous test of the entire field and then to gauge and check the production of the test so that the potentials established during the test would be beyond argument or controversy all operators in the tested fields were given at least two weeks' advance notice of the test and were advised to have everything in readiness for a production test of not less than ten nor more than thirty days; the duration of test to be decided by the oil umpire after examining the records of the first week. The following list of general instructions and rules was then given all operators with the advice that such rules would be rigidly enforced:

1. During the flow test every well shall be produced at a rate that can be maintained for at least one month, and indefinitely thereafter, without danger to the well or damage to the field.
2. All wells shall be produced during the flow test by the method which will be used for production under curtailment. For example, a well may not be gaslifted during the test with the expectation of either flowing or pumping its production under curtailment.
3. Excessive daily decline on all wells; irregular production on flowing wells; unduly high gas oil ratios or formation loss on gaslift wells; rod and pump trouble due to rapid pumping are to be avoided during the tests for such circumstances shall be considered prima facie evidence of forced or abnormal production.
4. Production records, production equipment and storage facilities shall at all times be open and accessible to representatives of the Oil Umpire for inspection, gauging and sampling.
5. The average production of each well during the last five days of the test will be considered its established potential, unless such average is clearly disproportionate to the average production of the entire test, and will serve as a basis for the estimation of subsequent potentials.
6. Wells not participating in a field flow test will be assigned arbitrary potentials based on past history and current conditions. At the option of the operator such wells may be subsequently tested under normal conditions to demonstrate their true potential.

Long Beach, California field, 1,100 wells which have produced 446,000,000 bbl. since 1921.

7. In calculating the average production of the five day potential period no allowance or credit will be given for shut downs or lost time. The total production of five elapsed consecutive days divided by five will be the established potential regardless of the time the well may have been idle during the five days.

8. At the option of the operator the resumption of production by a well that has been idle more than one day may be considered as the beginning of a supplementary test of not less than seven days of which the last five will be considered in establishing the potentials.

Prior to the zero hour of the test the Umpire's entire test staff consisting of clerks, gaugers, samplers, lab men, inspectors and supervisors was established in the particular field and given full and exact instruction regarding their duties. Field conditions generally made it necessary to run three tours properly to gauge and report the production of the field.

Every check possible was made upon the production of every well. One crew of gaugers was assigned to the gauging of individual wells on the property; another crew would gauge the production moved to the storage tanks on the property while still another crew checked all runs from shipping tanks. In addition to the gaugers a number of inspectors circulated constantly through the field for the sole purpose of observing and reporting production irregularities and questionable methods. Equal care was exercised in sampling and running cut determinations and in posting on forms all the production information collected. By the use of this flow test procedure a high degree of accuracy was realized.

At the conclusion of the test in the field there still remained the very considerable task of tabulating, classifying, digesting and analyzing the data collected in the field. The engineering staff of the Umpire's office was charged with this duty and with the determination of the potential established by the test. As indicated in the rules the average production of the last five days of the test ordinarily served to establish the potential unless such average was clearly disproportionate to the average of the entire test in which case judgment was necessary to determine the actual potentials.

In most of the fields of California the standardized system of graduated curtailment is in effect and in all but one of the fields of the state some weight is given to potential production in determining allotments within the field.

Graduated curtailment provides that all larger-than-average wells in a given field are required to take a progressively greater-than-average percentage of curtailment. All smaller-than-average wells, except those exempt from curtailment, are required to take a progressively smaller-than-average percentage of curtailment.

The average well of the field is the keystone and is required to take the average curtailment of the field. Wells exempt from curtailment are those having a potential less than the minimum well allotment which is determined by formula from the field quota, the average well, and the largest well. Minimum well allotment obtained by formula should be greater than the average daily production of a group of the smallest wells of the field and such a check is made by inspection. Individual well allotments are determined by first assigning the minimum well allotment of the field and then adding a uniform percentage of the remaining potential.

The effect of this method of graduated curtailment may be readily appreciated by reference to the accompanying table which shows the variable percentage of curtailment required from wells by application of the above method of allocation.

The example shows clearly how graduated curtailment benefits small wells at the expense of large wells. Surprisingly good results have been noted in some fields after being under graduated curtailment for several months.

Variable Percentage of Curtailment Required by Graduated Curtailment.

Normal Potential	Graduated Allotment		Prorata Allotment	
Barrels Daily	Barrels Daily	Per Cent of Potential	Barrels Daily	Per Cent of Potential
25	25	100	13.75	55†
50	35	70	27.5	55
100*	55*	55†	55*	55
200	95	47.5	110	55
300	135	45	165	55
400	175	43.75	220	55
500	215	43	275	55

* Average well of the field.
† Field allotment percentage.

It is evident that the proration procedure in use in California is so dependent upon normal potential production as the more important, though secondary, factor for the determination of allotments that occasional demonstrative flow tests of the principal fields is necessary as a check upon the potentials carried under engineering control. The recent flow tests were carried on with this purpose in view and were discontinued in late November, having been started in October.

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Anglo Persian Concession Cancelled

As the result of discontent growing out of reduced oil royalties accompanying reduced output on the part of Anglo-Persian Oil Company the Persian government formally announced cancellation of the extensive concessions of the Anglo-Persian Company in Persia. While considerable surprise was felt in oil circles in London and New York, it was generally recognized that this was simply a move on the part of the Persian government to force larger payments from the company which has financed most of the large public expenditures in Persia since oil production on a large scale began. This action was most untimely in view of the fact that reduced production on the part of Anglo-Persian is in accord with their policy of curtailing production in an effort to help stabilize the world oil industry. Company officials pointed out that there was no clause permitting cancellation in the terms of the concession and therefore the action of the Persian government cannot be sustained. The government has signified willingness to grant a new concession.

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Standard Alcohol Company Formed

Standard Oil Company of New Jersey has announced the sale of its interests in the manufacture of higher alcohols to the newly formed Standard Alcohol Company, a Delaware corporation headed by F. H. Bedford, Jr. Transfer of the interests concludes litigation between the Standard of New Jersey and Petroleum Chemicals Corporation. Petroleum Chemicals Corporation, controlled by Barnsdall Corporation and National Distillers Products Corporation has taken a substantial stock interest in the Standard Alcohol Company. The new company will have offices at 2 Park Avenue, New York City. Although F. H. Bedford is an executive of the Standard Oil Company of New Jersey some of the directors on Standard Alcohol Company are representatives of other interests.

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Uruguay government officials have closed contracts with Soviet agents for the purchase of all Uruguay's petroleum requirements for the year beginning June 1933 from Soyuznefteexport.

Sale of Richfield May Complete Third National Oil Company

Shell and Texas Only Present Transcontinental Marketing Organizations May Be Joined by Consolidated or Cities Service if Standard of California's Bid Is Not Accepted.

KEEN interest in the final disposal of the assets of Richfield Oil Company of California has been aroused by the announcement that three of the present four committees passing on the sale have approved the recent bid made by the Standard Oil Company of California. Withdrawal of the Consolidated Oil Company's bid of $25,000,000 6 percent debentures and 400,000 shares of common stock quoted at $7 a share and the fact that Cities Service has not made a bid for the assets of the Richfield company does not, however, close the case nor does it assure Standard of California of obtaining the property. Actual sale of assets is probably some distance in the future as a number of legal steps remain to be taken before the properties pass under control of the company which proves successful in the bidding. Complications have been present through all negotiations arising out of federal claims on oil produced from the Pan American Elk Hills leases which the Pan American company claimed was shared by the Richfield company.

The importance of the bidding on Richfield properties is apparent from a glance at the chart reproduced herewith. Success, on the part of the Consolidated or Cities Service companies in obtaining control would add a third to the existing two truly national marketing companies in the United States. The Shell Union Oil Corporation, controlling three marketing companies, covers territory from coast to coast, a breadth of marketing territory shared only by The Texas Corporation. Both Cities Service and Consolidated market on the Eastern Seaboard and in the Central States, Consolidated territory running to the edge of the Pacific Seaboard territory while Cities Service marketing territory stops at Colorado. Richfield, in either case, would complete their chain across the continent. Purchase by Standard of California would simply strengthen that company's already dominant position on the Pacific Coast by adding outlets to take care of Standard's excess production.

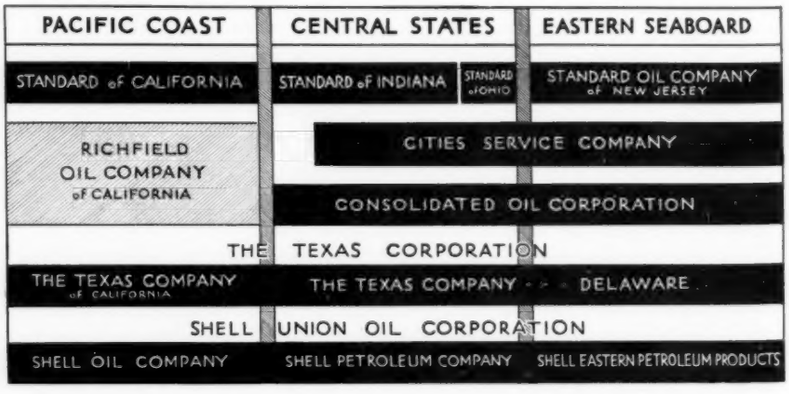
Of the four committees at present organized to represent creditors of the Richfield company three—bank creditors' committee, bondholders' committee, and unsecured creditors' committee—have gone on record as approving the California Standard's bid. Pan American bondholders' committee, on the other hand, formally announced that they did not join the others in approving the Standard's bid but held out in favor of the bid made by the Consolidated. The third potential bidder is Cities Service Company which holds controlling stock and a substantial amount of bonds of Richfield company. This company has not yet entered the preliminary bidding but has intimated that they will make a bid at a time that they consider suitable.

Standard of California's bid, having been approved by three of the protective committees, brings negotiations a step forward and will enable some of the preliminary legal steps to be accomplished which will eventually lead to action on the bids on record. It does not, however, eliminate the possibility of further bids from the other interested companies. Standard's bid provides $17,500,000 of 20 year guaranteed five percent debentures of the Richfield company and 200,000 shares of Standard Oil Company stock for the bondholders and creditors of the Richfield company. Standard agrees to underwrite the debentures at their par value, a clause that puts the bidding practically on a cash basis. Dissenters have therefore an alternative that provides cash for the full amount of the bonds if they should so desire. An important consideration in regard to this bid is the fact that Standard of California has no bonded indebtedness and no preferred stock issue. Delays in acceptance of this offer may be expected to arise from the necessity for a plan by which the offer will be distributed among the creditors.

Consolidated's offer, while slightly higher, has not had the same immediate cash value. This offer has been formally withdrawn but it is well understood that Consolidated does not consider this withdrawal as closing the matter for them; on the contrary, they are still keenly interested in acquiring the property that will, in accordance with their expansion program, make them a completely national company.

Cities Service, according to reports in

Chart showing the territory covered by the marketing facilities of several important companies in the United States. Note that Shell Union and The Texas Corporation are the only two companies marketing from the Atlantic to the Pacific, Standard companies being broken into separate companies serving major divisions, while the Cities Service and the Consolidated require California outlets to complete their transcontinental chain.



a very comprehensive article in the Pacific Coast edition of the WALL STREET JOURNAL, expect to make their bid for the Richfield properties within one day after the formal presentation of the offer to bondholders and creditors of the Richfield company. Their plan may include a reorganization of Richfield that takes into consideration shareholders as well as bondholders and creditors.

With bids from these three companies, or any bid that wins the approval of the protective committees, on record, a formal plan for the distribution of the offer to individual bondholders and creditors will be drawn up and submitted to bondholders and creditors who will have thirty days in which to signify their approval by depositing bonds with the committees approving the offer. Dissatisfied creditors have the option of depositing their bonds with committees opposing the offer.

Cities Service bid may be made at this time thereby creating a delay while an additional thirty days is allowed for the disposition of the bonds with the Cities Service committee after their formal plan has been submitted to bondholders. It is also possible that other protective committees may be formed by Cities Service and Consolidated.

With a definite plan for the distribution of an offer for the properties the courts can direct the removal of the Company from a receivership, foreclosure, and sale of the assets, and, as is pointed out in the WALL STREET JOURNAL article, final disposition of Richfield properties will not be definitely accomplished until the court has ordered this step as a result of evidence indicating that an equitable bid has been received. Final action, therefore, is not likely for two to three months.

Speculation regarding the disposal of Richfield's eastern distributing system has been growing. If the property should finally go to Standard of California disposal of the eastern marketing facilities would present a considerable problem as it seems unlikely that the California company would care to take the position of competing with its elder brothers entrenched in the Atlantic Coast market. On the other hand Consolidated or Cities Service could make excellent use of the additional outlets in the east.

Purchase of Richfield by Consolidated would increase that company's importance tremendously, especially if the line up were supplemented by acquisition of Rio Grande. Richfield is one of the most aggressive marketers on the west coast and concentrates in north and central California, overlapping but little the territory served by Rio Grande in the southern and eastern sections of that region. In spite of the obvious reluctance of west coast companies to having Sinclair interests enter their territory this move seems the next logical step in an aggressive expansion campaign.

The outcome of the bidding will be awaited with the interest warranted by such a fundamental change in the set-up of whatever company succeeds in obtaining this aggressive marketing organization.

California Richfield

Total resale accounts	4059
Total commercial accounts	1050
Total tank car buyers	33
Number of bulk plants	60
Bulk plants operated through distributors	40
Bulk plant operated through subsidiary (Richfield Distributing Co., Seattle)	1
Average monthly motor fuel sales, California, Washington and Oregon, 1st 6 mo., 1932 (gallons)	13,495,337
Serves territory of (population)	7,000,000

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New Law to Regulate Production in Texas

SPURRED to action by a statewide demand from oil producers for a law that would make it possible to avoid throwing open the oil fields of the state to uncontrolled production the Texas Legislature, on November 12, passed a measure specifically authorizing the State Railroad Commission to take into consideration the factor of market demand in determining allowable production from the various oilfields of the state. The bill was immediately signed by Governor Sterling. Having passed both Houses of the Legislature by more than a two-thirds vote it became effective at once. The Railroad Commission thereupon set November 26 as the date for a hearing following which total allowable production for the state was fixed under the new law at 845,625 bbl. per day.

Regulation of production in Texas heretofore has been governed by a statute which specifically prohibited consideration of economic waste in fixing allowable output and insisted that production should be restricted only to the extent necessary to prevent physical waste. The law which has just been amended was passed little more than a year ago at which time the Legislature decisively rejected the proposal to base production on market demand on the ground that it involved, an attempt at price fixing.

The complete change of front which has now taken place resulted from a decision rendered by three Federal judges on October 24 which held that in certain of its orders against which complaint had been laid the Railroad Commission under the pretense of preventing physical waste actually had "set on foot a plan which derives its impulse from an attempt to control the delicate adjustment of market supply and demand." Apprehension that this decision might result in opening Texas fields to full production led to demands for legislative action from producers in all parts of the state including many of those in East Texas who formerly had opposed proration in any form.

The principal change in the Texas law is contained in its broadening of the definition of waste. Sec. 1 of the law declares that, "the production or storage or transportation of crude petroleum oil or of natural gas in such manner, in such amount, or under such conditions as to constitute waste is hereby declared to be unlawful and is prohibited." Then follows eleven definitions of waste in various forms which the Commission is authorized to prevent. The last of these reads as follows:

> The production of crude petroleum oil in excess of transportation or market facilities or reasonable market demand. The Commission is authorized to determine when such excess production exists or is imminent and to ascertain the reasonable market demand.

The above language gives a broad latitude to the State Railroad Commission in deciding the extent to which the oil fields of the state shall be allowed to produce. It follows closely the Oklahoma statute dealing with this phase of the subject. Sponsors of the law feel that since the Oklahoma measure has been upheld by the Supreme Court of the United States in the Champlin case which involved this particular point there is every probability that the Texas law will withstand legal assaults.

As safeguarding features the Legislature included in the law provisions that no limitation should be applied to any field until its production reached 10,000 bbl. daily, that no restriction should be placed on exploratory drilling and that the Commission at all times "take into consideration and protect the rights and interests of the purchasing and consuming public." The duration of the act is limited to September 1, 1935.

Dewaxing Oils by S-N Tri-Process

Greater Efficiency and Fifty Percent Saving in Cost Among Advantages Claimed for New Deparaffining Process. To Be Used in French Refinery for Cylinder Oil.

AT THE Congress of the Polish Mineral Oil Technologists held in Lemberg, Poland, in December 1930, there was disclosed for the first time a new deparaffining process by means of centrifugals. This process is the patented S-N Tri-Process which differs essentially from the systems heretofore known and used.

In contrast to the processes which have heretofore been employed and by which the paraffin is removed from the oil (which has received some sort of pre-treatment) as the heavier component by centrifugal action, according to the new process the paraffin leaves the centrifugal as the lightest component. Whereas according to the first process it is preferred to use a light and preferably constant boiling benzine as a solvent, in the new process use is made of a chlorinated hydrocarbon. The new process, however, is not limited solely to the use of this solvent but there may be used any other liquid which has a higher specific gravity than the oil which is to be deparaffined, and which will have the properties of a solvent.

The oil which is to be deparaffined is mixed with trichlorethylene (TRI) in certain proportions. Because of its high specific gravity (1.47), its low boiling point (87 deg. C.) and its very favorable specific heat and heat of evaporation (0.228 and 56.5) TRI has been selected as an especially suitable solvent.

After all oil and paraffin has passed into solution the oil-TRI mixture is cooled to the accompaniment of continuous stirring in ordinary crystallizers, for example, from +40 deg. C. down to −30 deg. C. in about 12 to 15 hours. After attaining the desired temperature the oil-TRI solution together with the precipitated paraffin is centrifuged in a S-N deparaffining separator and the two separated components (deparaffined oil and de-oiled paraffin) are freed from the TRI by distillation with steam at 115 to 118 deg. C. This separator is of special construction and, as is also the case with the process, is patented in most countries.

During 1931 and the first months of 1932, both in Europe and in the United States, deparaffining operations were carried out on an industrial scale with S-N separators.

Explanation of Tests

3. This oil could be deparaffined only with great difficulty and with a very small hourly output by means of the benzine method (dilution with benzine and centrifuging). Very noteworthy is the fact that the cloud point of the oil which has been deparaffined by the S-N TRI Process was very close to the cold point. The difference was not more than 1.6 deg. C., whereas in the oil deparaffined according to the benzine method it was 5.5 to 8 deg. C.

The process has proved very adaptable to oils of similar properties, as was already shown in 1930 by the figures relating to Polish oils from Schodnica and Urycz reported to the Lemberg Congress.

4. Previous to deparaffining, the distillate was subjected to a light pre-refining by means of sulphuric acid, after which it was subjected to a treatment with bleaching clay.

5. This oil was from the same fraction as the preceding but was not subjected to pre-refining before deparaffining; it could not be continuously deparaffined by the benzine method.

After deparaffining, this oil was brought to the color of oil number 4 by treatment with bleaching clay. It was then shown by control tests that the cold point of the oil was not raised and also that the temperature difference between the cloud point and the cold point was very small and did not exceed 1.2 deg. C. For obtaining the prescribed color no more bleaching clay per barrel of oil was required than was needed for oil number 4.

It is noteworthy that when using the new process for deparaffining the oil which had not been pre-refined the hourly capacity can be somewhat increased, and that with less cooling a lower cold point could be reached. Special note should be made of the short time required for cooling the oil TRI solution; this is only 1/5 to 1/6 of the time consumed in the benzine process. This circumstance and also the smaller quantities of solvent required allows of reducing the size of the cooling plant, the crystallizers, and the necessary accessory apparatus to about half the size required for the benzine process.

A not inconsiderable advantage of the new process is the non-inflamability of the solvent, which consequently removes the danger of fire.

One of the immediate results of the investigations is that a large refinery in France now in course of construction will deparaffin about 400 bbl. of cylinder oil E. 100–3–5 daily.

Deparaffining Test Results Using S-N Separators

1. Automobile Oil E-50–9.65

Mixture oil-"Tri" by Volume		Cooling From Deg. C.	To	Time of Cooling, Hours	Deparaffined Oil Litres per Hr.	Yield Percent Oil	Parf.	Cold Point deg C. Oil	Parf.
55	45	40	−24	12.5	650	92	8	−11.5	44.5
60	40	40	−24	12.5	700	91.5	8.5	−11.0	44

2. Cylinder Oil E-100–3

Cold Point 36 deg. C. Pipe Still Distillate Crude Oil—Venezuela

40	60	45	−20	14	500	85	15	− 8	57
45	55	45	−20	14.5	520	85.5	14.5	− 6.5	55
60	40	50	−22	15	530	86	14	− 6	54.5

3. Cylinder Oil E-100–3.4

Cold Point 0 deg. C. Pipe Still Distillate, Crude Oil—Colombia

50	50	45	−31	15	600–660	96–97	3–4	−14	54
50	50	45	−18	13	660–730	97.8	2.2	−11	53
55	45	45	−20	14	660–730	98	2	− 8	53
55	45	45	−18	12.5	660	98.2	1.8	− 7	53

4. Cylinder Oil E-100–3.5

Cold Point 35 deg. C. Pipe Still Distillate, Crude Oil—Burbank

04	60	45	−30	14	330–350	87.5	12.5	− 8	58

5. Cylinder Oil E-100–3.9

Cold Point 35 deg. C. Pipe Still Distillate, Crude Oil—Burbank

40	60	45	−26	13.5	350–375	88.5–89	11–11.5	− 7	58
40	60	45	−29	14	375	87–87.5	12.5–13	−11	57

UNITED STATES

	Daily Production bbl.	Daily Runs to Stills bbl.	Gasoline Stocks bbl.	Imports for week bbl.	California Shipm. East for week bbl.
Week Ending Oct. 29..	2,096,600	2,040,000	49,477,000	840,000	192,000
	341,800*				
Week Ending Nov. 5..	2,103,700	2,000,000	48,799,000	742,000	188,000
	349,100*				
Week Ending Nov. 12..	2,134,350	2,135,000	48,321,000	687,000	192,000
	350,950*				
Week Ending Nov. 19..	2,111,100	2,103,000	48,364,000	645,000	85,000
	355,700*			55,000**	
Week Ending Nov. 26..	2,099,250	2,126,000	49,084,000	654,000	210,000
	360,000*				

Underlined figures indicate improvement in statistical position—decrease in production, runs to stills, gasoline stocks or imports.

* Production of the Rusk-Gregg field, East Texas.

** Imports of gasoline, included in first total.

Imports and Exports

DURING September, the third month after the imposition of a tariff on crude oil and its products, total imports continued at a low level, reaching but 3,137,000 bbl., as compared with 3,434,000 bbl. in August, 1932, and a monthly average of 9,090,000 bbl. for the first six duty-free months of the current year. Motor fuel imports continued nominal in September amounting to 62,000 bbl.; as compared with 111,000 bbl. imported in August, and a monthly average of 1,272,000 bbl. for the preceding six duty-free months.

The petroleum exports for the month of September decreased somewhat under those of August, the total volume being 7,896,000 bbl., as compared with 8,489,000 bbl. in the preceding month, while motor fuel exports in September increased to 2,735,000 bbl., as compared with 2,366,000 bbl. exported in August.

The post-tariff favorable trade readjustment previously noted in July and August was thus continued into September. The reduction in motor fuel imports of 1,210,000 bbl. was partially counterbalanced by the reduction of motor fuel exports by 805,000 bbl., while the imports of all other petroleum products contracted by 4,743,000 bbl. during September, and their exports decreased by 901,000 bbl., leaving an apparent favorable balance of 4,247,000 bbl., or 141,300 bbl. per day, which was taken out of domestic storage and not from the imported products, which would have been the case if the oil tariff had not been in force.

On the basis of actual values the domestic producers and refiners similarly profited by the tariff as indicated by the export—import chart, on which July, August and September "true" exports have uniformly exceeded "true" imports by about 10,000,000 bbl. per month, as compared with irregular fluctuations around 5,000,000 bbl. each month excess of "true" exports from the beginning of 1931.

Withdrawals from Stocks

INDICATED domestic demand for motor fuel during September, 1932, averaged 1,122,000 bbl. per day, a decrease of 1.23 percent under the daily average of the preceding month, and 100,000 bbl. per day under the domestic motor fuel consumption in September of 1931, a decrease of 8.17 percent.

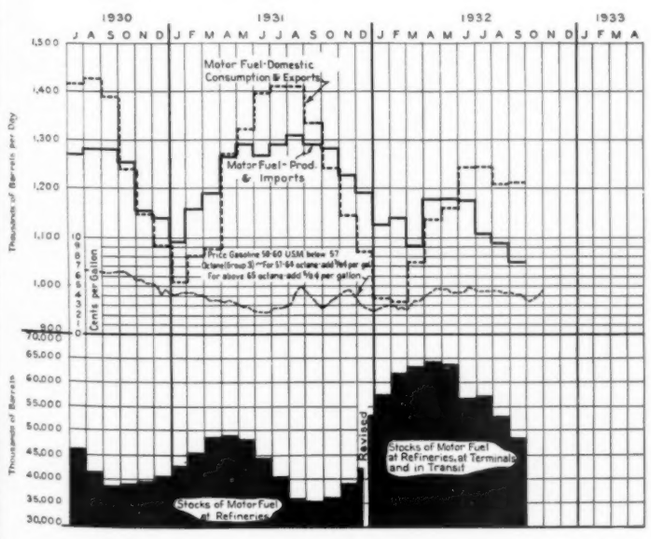
Exports of motor fuel averaged 91,000 bbl. per day in September, 1932, an increase of 19.75 percent over the preceding month, but 18.75 percent under September of 1931. Total demand for motor fuel in September, 1932, thus decreased by 9.05 percent as compared with the same month of the preceding year.

On October 1 the motor fuel stocks at refineries, terminals and in transit amounted to 47,933,000 bbl., representing a net withdrawal of 4,925,000 bbl. from stocks on hand on September 1, indicating that the total demand for motor fuel during September exceeded the total supply by 164,100 bbl. per day.

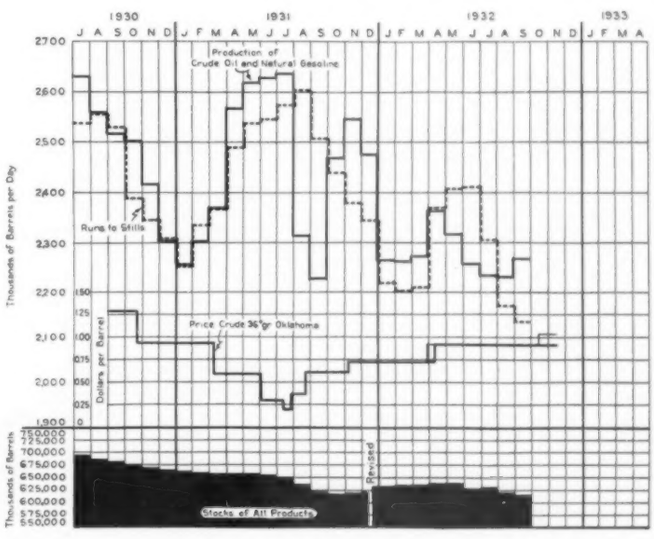
Motor Fuel Outlook

THE Volunteer Committee on Petroleum Economics as reported in detail on other pages of this issue recommends a daily average domestic crude oil production of 2,050,000 bbl. for the six month period ending March 31, 1933, and a daily average refinery gasoline production of 1,020,000 bbl., allowing for an addition

U. S. consumption and exports, production, imports and prices of motor fuel in relation to motor fuel stocks.


1930
1931
1932
1933
J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A
Motor Fuel-Domestic Consumption & Exports
Motor Fuel-Prod. & Imports
Price Gasoline 58-60 USM below 57 Octane(Group 3) —For 57-64 octane add ½¢ per gal. For above 65 octane add ¾¢ per gallon
Cents per Gallon
Thousands of Barrels per Day
Thousands of Barrels
Revised
Stocks of Motor Fuel at Refineries, at Terminals and in Transit
Stocks of Motor Fuel at Refineries

U. S. production, runs to stills and price of crude oil in relation to stocks of all petroleum products.


1930
1931
1932
1933
J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A
Production of Crude Oil and Natural Gasoline
Runs to Stills
Price Crude 36° gr Oklahoma
Dollars per Barrel
Thousands of Barrels per Day
Thousands of Barrels
Revised
Stocks of All Products

to storage by March 31 of 6,200,000 bbl.

Future outlook for motor fuel consumption in United States is quite favorable. While the total number of motor vehicles is not likely to exceed the 1930 maximum total of 26,545,000 units, the consumption of gasoline per registered vehicle will in all probability further increase. Thus while in 1922 the average consumption per motor vehicle was 373 gal., in 1926 it was 415 gal. and in 1930 it reached 533 gal., declining to an estimated 512 gal. in 1932. It has been considered probable that by 1942 the average consumption of gasoline per motor vehicle will reach 700 gal. due to better highways and more skillful traffic regulations, and with a conservative estimate of 26,000,000 units in operation in that year the domestic motor fuel demand in 1942 will reach 19,000,000,000 gal., including in that figure 800,000,000 gal. to be consumed by aircraft. The above total would figure at 452,000,000 bbl., or 1,240,000 bbl. per day, for the domestic motor fuel demand in 1942.

Refinery Runs

FOR the weeks ending November 12 and 17 crude oil runs to stills increased notably to 2,200,000 bbl. and 2,168,000 bbl. (Bureau of Mines) respectively, or considerably in excess of the limits recommended by various statistical agencies, and in volume sufficient to have caused recent declines in refinery gasoline quotations on the Mid-Continent markets. Any sustained improvement in crude oil and refinery gasoline prices, throughout United States, will require the reduction of crude oil runs to stills to an absolute maximum of 2,100,000 bbl. per day (Bureau of Mines), and preferably somewhat less, to be maintained over the whole of the slack consumption season.

Prices

THE dual schedule of crude oil prices in the Mid-Continent area, the continued indefiniteness of the Texas situation and the seasonally declining motor fuel demand, all contributed towards small volume of buying of motor fuel and consequently lower quotations in Group 3, Oklahoma, market, while the Eastern markets, possibly anticipating greater stabilization in the near future, stiffened fractionally, though they in turn were disturbed by the announced intention of the Atlantic Refining Company of putting into effect of discounts ranging from 1 to 3½ cents a gallon for retail and tank wagon sales, depending upon quantity.

On November 15 the Socony-Vacuum Corporation announced throughout New England and New York territory a motor fuel price advance of half-a-cent a gallon, both tank wagon and service station, effective November 16. This advance was met by other marketers thus bringing the service station price in New York City to 16½ cents a gallon, including Federal and State taxes of 4 cents a gallon. This increase in motor fuel prices in the Eastern markets was the second since the partial advance of crude oil prices in the Mid-Continent area on October 15, the first one-cent advance having been made on October 20, as reported in the preceding issue of WORLD PETROLEUM. The second advance was not extended into the interior of the United States, due probably to the weakness of refinery gasoline quotations in the Group 3, Oklahoma, market.

Refinery gasoline prices reached a peak about November 1 when quotations for 58–60 U. S. M., 57 and below octane rating, were steady at 4½ cents per gallon, but declined three-quarters-of-a-cent a gallon by November 24. Quotations on that date were—3⅞–4⅛ cents per gallon for 58–60 U. S. M., 57 and below octane rating, with some distress gasoline of that grade being offered at 3½ cents a gallon, in Group 3, Oklahoma, market; 57 to 64 octane rating, U. S. M., commanded 4⅛–4⅜ cents per gallon and 65 and above octane rating, U. S. M., was quoted at 4⅜–4⅝ cents per gallon. Gulf Coast prices for export weakened to 4¼ cents per gallon for 58–60 U. S. M. grade by November 21, after advancing to 4⅝ cents per gallon. An illuminating indication of the trend of public buying during the current depression year towards regular grade of gasoline of high octane value, in preference to the Ethyl gasoline at a 3-cent premium, is the latest report of the Ethyl Gasoline Corporation which indicates that sales of Ethyl gasoline declined 333,345,136 gal. to 791,290,722 gal. during the first seven months of 1932, with July being the smallest month for gallonage this year.

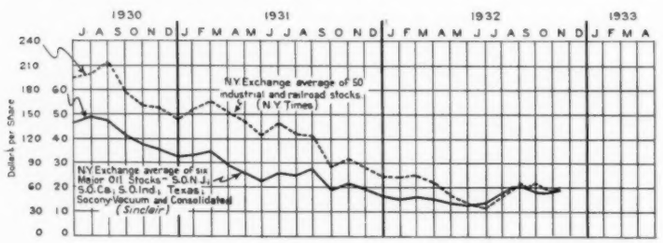
Natural gasolines declined fully one cent a gallon from the preceding month, being quoted on November 21 at 2½ cents per gallon for grade 26–70 in Oklahoma and North Texas, and at 2¾ cents per gallon in Northern Louisiana.

Kerosene prices improved ¼ of a cent per gallon from the preceding month due to seasonal demand, 41–43 w.w. grade being quoted on November 21 at 3½–3¾ cents a gallon in Group 3, Oklahoma, market; Gulf Coast prices for export remained unchanged at 4½ cents a gallon for grade 41–43 p.w.

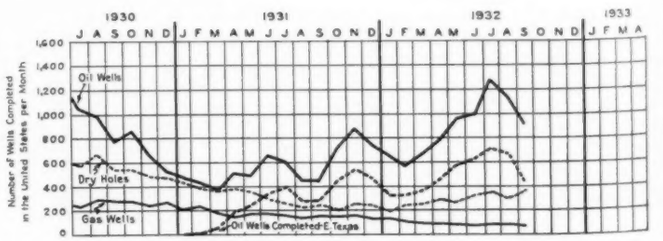
The dual schedule of crude oil prices continued in the Mid-Continent oil fields during the past month. Kanotex Refining Company has withdrawn the higher price schedule and has returned to the former quotations, while the Anderson-Prichard Oil Company has joined the group of companies paying the lower scale. An analysis of the Mid-Continent pipeline runs reveals that most of the oil companies which advanced crude oil prices on October 15 produce most of their crude requirements, and are, therefore, small buyers from outside connections (with the exception of the Shell Petroleum Company and The Texas Corporation, which purchase as much crude oil as they produce from their own leases), whereas the majority of companies opposing the advance produce only a small proportion of their requirements. Thus the 23 companies which met the advance of October 15 purchase only about 30 percent of their total requirements, producing the balance from their own properties, while the 155 companies which opposed the advance purchase about 57 percent of their requirements.

The partial maintenance and the extension of higher crude oil prices depends entirely upon the possibility of effecting radical curtailment in Texas oil fields, and failing such reduction at an early date prices for crude oil will return to their former level, or even break through them, in the coming winter. The recent second advance in Eastern gasoline prices marks a certain improvement in the

Six major oil stocks in relation to 50 industrial stocks on the New York Stock Exchange.



U. S. drilling; comparison of oil wells, dry holes, and gas wells.



refinery price market structure and with considerably reduced crude oil production, if and when effected, may cause the Standard Oil Company of New Jersey and the Standard Oil Company of Indiana to join the group of companies paying higher prices for crude oil, provided again, however, that the product prices further improve over most of the United States, thus justifying higher crude oil prices.

With the continued high rate of production up till the end of November the crude oil market in the Mid-Continent oil fields showed definite signs of weakness. On November 22 the Humble Oil and Refining Company (S. O. N. J.) reduced the prices of heavy-grade Gulf Coast crude oil 10 to 20 cents a barrel, also cutting the Mirando crude 10 cents per barrel. On the same date the Anderson-Prichard Corporation returned to the old schedule in Oklahoma, rescinding their recent advance.

New Texas Law

THE extraordinary session of Texas legislature, called by Governor R. S. Sterling to remedy the defects of the state's proration law which were pointed out by the three Federal judges in their decision of October 24, as indicated in the preceding issue of WORLD PETROLEUM, met on November 3 and on November 12 passed a new law allowing the Texas Railroad Commission to consider the "market demand" in fixing the flow from the oil fields of the state. Governor Sterling signed the new law on November 13, making it effective immediately. A state-wide hearing on allowables of various pools called by the Texas Railroad Commission for November 25 at Austin fixed the allowable for East Texas at 325,000 bbl. per day and total maximum production for the whole state at 845,625 bbl. daily, effective December 1.

Daily Average Output of Three Principal Oil Producing States

Week Ending	Oklahoma bbl.	California bbl.	Texas bbl.
Allowables Set Oct. 15	381,740	440,000	804,801
Oct. 22	399,550	488,100	874,800
Oct. 29	395,400	475,100	835,550
Nov. 5	394,100	465,300	851,000
Nov. 12	397,300	475,700	863,200
Nov. 19	387,400	467,400	867,200
Nov. 26	366,800	471,600	869,650

The Oil States Advisory Committee met on November 18 to draft entirely new uniform conservation laws to be submitted to the next sessions of Texas, Oklahoma and Kansas legislatures, carrying as an added feature a clause permitting a state to join other oil states in a compact agreement to control production. This Committee was in agreement with the Volunteer Committee of Petroleum Economics and the American Petroleum Institute in advising that domestic production be limited to 2,045,000 bbl. per day from this time until the end of the year, and to 2,000,000 bbl. per day for the first three months of 1933.

The accompanying table indicates that the proration objectives set on October 15 for the three major producing states, and which influenced primarily the crude oil advance at that time, have not been reached, hence delaying stabilization of the producing branch of the industry and not justifying higher crude oil prices at the moment.

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Chemical Treatment of Wells a Major Development

PARADOXICALLY enough in these days of prorated great oil fields and general overproduction there is being developed quietly a new method of treating oil wells which promises to revolutionize production methods and double recoveries in at least some pools and to assist in increasing production in many others. The new development has been stimulated at this time by large allowances in the older pools, some times as high as 100 percent of the potential, as compared with an allowance of 0.5 percent in a number of recently discovered great flush fields.

The new treatment consists of introducing various acids into wells, the acid carrying certain percentage of inhibiting agent to prevent corrosion of pipe, tubing and pumps. The new treatment has been patented by John J. Grebe and Ross T. Sanford, assignors to the Dow Chemical Company of Midland, Michigan, in which state the process was first developed. The patent under No. 1,877,504 was granted on September 13, 1932, by the United States Patent Office.

The following paragraphs from the patent copy describe the process in detail:

The present invention relates to the treatment of deep wells, such as oil, gas, brine or water wells, to increase the output therefrom. It is more especially concerned with the treatment of wells in which the mineral-bearing stratum consists of a limestone or other calcareous formation, or is contiguous to such a formation.

An object of the invention is to counteract some preventable natural causes for the decline of yield of a well. A familiar example is the decline of production of an oil well. When it is first drilled into an oil-bearing stratum, the release of pressure upon the oil deposit may cause the well to flow naturally for a certain length of time. The flow will gradually recede from the initial high point to the point where natural flow does not produce a sufficient yield, and thereafter pumping will be resorted to, until the continued decline in output renders further operation unprofitable. In many cases, however, the stoppage of oil output is caused, not by exhaustion of the oil supply, but by the building up of solid deposits of wax or the like in the channels and pores of the oil-bearing rock which obstruct and finally may cut off altogether the flow of oil to the well.

Various methods have been used for opening up or cleaning a clogged well hole, such as drilling, "shooting" with explosive or by chemical treatment. The first two methods mentioned have the disadvantage that the pump rod and tube must be removed prior to applying the treatment, in addition to which, in the case of using an explosive, there is danger of damaging the casing. The chemical methods heretofore proposed have either not been found effective to clear the hole or they have involved the use of corrosive substances which are injurious to the metal parts of the well structure.

As an illustration, a chemical method is described in United States Patent 556,669, according to which the flow of an oil well in a limestone formation is increased by treating with a quantity of an acid, such as hydrochloric acid. The acid has the effect of attacking and dissolving the rock, thereby enlarging the cavity at the bottom of the well, or the channels and pores in the rock through which the oil flows to the well. In actual practice, however, this method has never been generally adopted, due to the fact that the acid attacks the metallic casing, pump tube, etc. about as actively as the rock, and causes serious damage thereto.

We have now found that the last-mentioned method may be adapted for use in increasing or restoring the flow of oil wells by suitable modification without material injury to the casing or other metallic parts of the well. The treatment can be carried out at less cost and with better results than any of the methods heretofore employed. The invention, then, consists of the improved method hereinafter fully described and particularly pointed out in the claims.

In carrying out our improved method we employ a mineral acid, preferably hydrochloric acid, inasmuch as the latter upon reacting with the calcareous rock forms water-soluble salts which remain in solution and are removed from the well with the spent acid. To the acid we add a small amount of a substance capable of inhibiting attack of the acid upon metal surfaces, e.g. of iron or steel, copper, etc., with which it comes in contact. As the inhibiting agent we prefer to use an arsenic compound soluble in the acid solution, examples of which are arsenic acid, H_3AsO_4, arsenic trioxide, As_2O_3, or a soluble arsenate or arsenite, such as the corresponding

World Oil Production — Official Figures

All figures furnished direct to WORLD PETROLEUM by Governments, except where otherwise specified

(Figures in U. S. Barrels—Conversion ratio 7 bbl. = 1 ton)

Country	Total 1931	Daily Av. 1931	January 1932	February 1932	March 1932	April 1932	May 1932	June 1932	July 1932	August 1932	September 1932	October 1932	Daily Av. 1932
United States	850,275,000	2,329,520	66,884,000	62,484,000	67,189,000	67,717,000	63,523,000	64,835,000	66,310,000	66,220,000	65,036,000	66,300,000[1]	2,152,452
Russia	156,342,900	428,336	13,059,900	12,194,000	13,852,300	13,101,200	13,437,200	12,971,700	12,923,400	12,721,800	11,598,300	11,928,700	418,979
Venezuela	120,069,462	328,957	9,939,027	9,469,873	10,398,514	10,870,615	11,219,908	11,151,490	9,822,428	9,562,777	9,080,050	9,392,894	330,844
Roumania	46,333,945	126,942	3,780,000	3,439,100	3,621,170	3,557,470	3,748,710	3,745,238	4,289,327	4,868,801	4,166,568	5,110,000[1]	132,218
Persia[2]	40,253,486	110,284	3,325,000	2,814,000	3,738,000	3,451,000	3,773,000	3,913,000	4,543,000	4,116,000	4,011,021	3,982,132	123,195
Mexico	33,038,853	90,517	2,869,177	2,761,064	2,967,842	2,922,309	2,926,574	2,701,184	2,505,879	2,462,961	2,513,673	2,569,559	89,181
Dutch East Indies	32,818,346	89,913	3,943,147	3,652,432	2,844,065	2,923,382	2,865,261	2,963,350	3,185,252	3,216,899	3,492,903	4,551,595	110,289
Colombia	18,237,190	49,965	1,533,969	1,401,554	1,668,508	1,655,922	1,682,223	1,627,377	1,455,599	1,444,432	1,374,006	871,510	48,246
Argentina	11,709,759	32,091	1,116,800	1,040,000	1,192,700	1,078,500	1,057,200	1,001,000	1,067,000	1,019,400	1,031,600	1,210,400	35,158
Peru	10,102,116	27,677	945,231	750,804	697,622	732,308	951,112	972,890	830,986	819,772	749,209	560,449[1]	26,264
Trinidad	9,743,763	26,695	846,878	828,860	874,145	852,080	859,609	839,248	883,102	754,301	840,981	850,281	27,638
British India	7,830,101	21,452	750,251	698,645	719,337	681,942	739,570	672,613	700,000[1]	700,000[1]	700,000[1]	700,000[1]	23,155
Poland	4,397,760	12,049	351,365	324,100	334,495	336,231	340,200	336,000	351,603	345,408	185,500	327,194	10,598
Sarawak	3,338,472	9,146	210,748	200,102	197,050	191,282	187,859	177,023	195,188	192,293	187,397	168,000[1]	6,252
Japan and Taiwan[1]	1,884,285	5,162	195,000	195,000	195,000	195,000	195,000	195,000	195,000	195,000	195,000	195,000	6,393
Egypt	1,845,938	5,057	138,796	137,431	142,275	151,305	146,489	152,712	159,208	163,093	147,581	129,500[1]	4,811
Ecuador	1,750,633	4,796	126,406	111,361	126,024	133,844	139,389	137,437	143,010	135,063	128,698	134,809	4,311
Canada	1,583,339	4,338	96,912	90,841	97,484	95,585	95,221	89,533	86,969	85,229	79,813	78,845	2,940
Germany[3]	1,778,602	4,873	148,197	150,197[4]	262,528	141,780	150,000[1]	150,000[1]	150,000[1]	139,909[1]	129,633[1]	141,351	5,127
Iraq[1]	1,200,000	3,290	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	3,279
France	512,862	1,405	46,000[1]	46,000[1]	46,000[1]	46,000[1]	46,000[1]	46,000[1]	46,000[1]	46,000[1]	46,000[1]	46,000[1]	1,508
Others[1]	338,700	929	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	1,180
	1,355,385,512	3,713,394	110,442,804	102,925,364	111,300,059	110,970,755	108,219,525	108,813,795	109,978,951	109,345,138	105,829,933	109,384,219	3,564,621

[1] Estimate. [2] Anglo-Persian Oil Co. figures revised; fuel oil returned to the ground has been deducted. [3] A.P.I. [4] No production in Thuringia January 13 to March 10. [5] Including Thuringia. Sakhalin (Russian) included with Russia. Sakhalin (Japanese) included with Japan.

alkali metal salts. The amount of arsenic compound added may be varied, but we have found that from 1 to 5 percent thereof, based upon the weight of the solution, will be satisfactory for the purpose. Other inhibitors which may be used are cyanides, organic nitrogen bases such as aniline, phenyl-hydrazine, pyridine, quinoline, acridine and derivatives thereof, organic sulphur compounds, such as mercaptans, as well as various by-products of industrial processes, such as sludge acid from oil refining and residues from acid sulphite paper manufacture, etc.

The strength of the aqueous hydrochloric acid solution, in general best adapted to the purpose in hand, may be between about 5 percent and about 20 percent, and preferably should be between 10 and 15 percent although other concentrations may be used, if desired. With such strength of acid the corrosive action thereof upon metals, particularly iron or steel, can be largely or substantially inhibited by adding thereto a relatively small amount of an arsenic compound or other inhibiting agent. Consequently, the acid can be introduced into the well through the pump tube, so that the latter need not be withdrawn prior to the treatment. It is sufficient merely to pull the pump rod and valves, and to pour the acid solution into the well through the tube. Due to the presence of the inhibitor there will be no substantial attack upon the pump tube, or upon the well casing if the charge of acid rises high enough in the well to contact with the casing.

The acid solution is preferably added in amount calculated to fill the bore of the well to a depth not exceeding the thickness of the mineral-bearing stratum. In order to force the charge of acid out of the pump tube into the bore of the well against the head of oil standing in the hole, it may be followed by a charge of oil, water or other liquid sufficient to overcome the head, or pressure may be applied by other suitable means, e.g. by air pressure or by means of a pump. When introduced into the bottom of the well, the acid attacks the rock structure and dissolves or disintegrates it, thereby enlarging the pores and channels in the rock, or opening up new channels. The action of the acid upon a limestone formation causes the evolution of a considerable volume of carbon dioxide gas. This gas may be allowed to escape up the casing, or the latter may be capped off, thereby creating a gas pressure within the well which assists in forcing the acid into the pores and crevices of the rock. After the action of the acid has practically ceased, the spent solution containing the dissolved salts may be pumped or bailed out. In many cases it may be desirable to repeat the treatment one or more times. By making successive additions of smaller amounts of acid solution, and pumping out the spent acid between charges, a greater cumulative effect may be produced than by the use of a single larger charge. It is not necessary, however, to add acid solution through the pump tube, as any other convenient way may be employed. For instance, the pump tube may be withdrawn and a dump bailer used to lower a charge of acid into the base of the bore.

In the practical use of our method in the central Michigan oil field, where the oil is derived from a calcareous rock formation, we have successfully used hydrochloric acid solutions of 10 to 15 percent strength to which was added a small amount, e.g. 1 to 5 percent, of an arsenic compound. For example, to 4,500 lbs. of a 15 percent hydrochloric acid solution was added 2 gal. of arsenic acid solution containing 21 lbs. of arsenic calculated as As_2O_5. The mixed solution was charged into an oil well through the iron pump tube, being followed by a quantity of crude oil to force the acid solution out of the tube into the well. After the acid was exhausted, it was pumped out, and thereupon regular pumping of the oil was resumed. The production of the well was approximately doubled with one treatment.

The method has been used repeatedly for the treatment of low yield or exhausted oil wells in producing territory with a resultant increase of output amounting to as much as 75 to 200 percent, and in some cases wells which have ceased to flow have been brought back with a resumption of natural flow. The treatment has been applied in the manner described without appreciable damage to the pump tube or well casing. The invention may also be employed similarly to increase the flow of gas wells and brine or water wells in cases where the mineral or water-bearing stratum, or the immediately adjacent strata, are of a limestone or calcareous formation, or of a nature such as to be acted upon and dissolved by hydrochloric acid solution.

In fact the new method of treatment has even wider application than indicated in the patent. In addition to limestones, very many sandstones are cemented by calcareous material which is easily dissolved by hydrochloric acid, while other cementing mediums may be soluble in other acids which similarly may be inhibited. Thus hydrochloric acid (HCl), sulphuric acid (H_2SO_4), nitric acid (HNO_3) or Aqua Regia may possibly be used under varying conditions.

The new treatment has been successfully tried already in an experimental way in Michigan, in Oklahoma and in Texas. In Michigan, where production is derived from limestone formations, production has been increased 100 to 200 percent in several instances, while very recently a well abandoned several months ago, T. K. Buzard No. 1 Mahon in Isabella County, after acid treatment

flowed 368 bbl. of oil in the first 24 hours and 200 bbl. the second 24 hours, settling down to 125 bbl., and the Braden-Saunders No. 1 Stapleton in Midland County completed in September for 210 bbl. per day was increased to 1,700 bbl. per day by acid treatment. Similarly excellent results have been obtained in Wewoka and St. Louis pools in Oklahoma. in which Hunton limestone and Simpson dolomitic sandstone produce respectively. the production having been stepped up five to ten times by the acid treatment, several stripper wells resuming their natural flow. In north central Texas a number of wells after treatment increased their production by pumping from 5 to 50 bbl., production in these fields being derived from Pennsylvanian limestones and sandy limestones. The same results have been obtained in a few wells treated in West Texas, where production is found in Permian and Pennsylvanian dolomitic limestones.

The experience to date, however brief, seems to indicate that acid treatment gives best results in the case of good wells which declined in production, rather than with initially small wells. A serious danger of acid treatment is in the case of water flooded areas where acid inexpertly applied may cause immediate flooding by eating its way through to the waterflooded sections.

A very serious question of the validity of the Dow Chemical Company's patent will arise as soon as the importance of the new method is more fully realized. Suffice it to say that undoubtedly certain currently non-commercial deposits found in tight limestones, or sandy limestones, can be made available to commercial exploitation by relatively inexpensive acid treatment, while other exhausted fields may be rejuvenated. Cumulatively the acid treatment adds great reserves to the world's crude oil resources.

Rusk-Gregg—East Texas

THE per well per day allowance in the East Texas field remained at 40 bbl. from October 15 to November 30, the new allowance of 325,000 bbl. daily or 37 bbl. per well per day becoming effective on December 1.

At the close of November there were in the East Texas field about 9,250 wells, an average of one well per 11.9 acres of its proven area. Cumulative recovery from the field reached around 222,000,000 bbl. by December 1, an equivalent of 2,010 bbl. per acre of the proven territory. New locations continued at a high rate, amounting to 100 for the week ending November 12, while 120 oil wells were completed in the same week. New projects in the East Texas field are undertaken on small subdivided leases of minor operators, and also, at this time, on the south end of the pool which has been actively developed but recently.

The Texas Railroad Commission has under consideration a new basis for curtailment which would take bottom hole pressure and acreage as a basis for the allotment per well in the East Texas field. The well allowable would vary under the new plan from 26 to 44 bbl. per day, thus meeting many criticisms of inequitable proration by the present method; but difficulty is anticipated in obtaining agreement from some operators to this plan.

Conroe—Texas Gulf

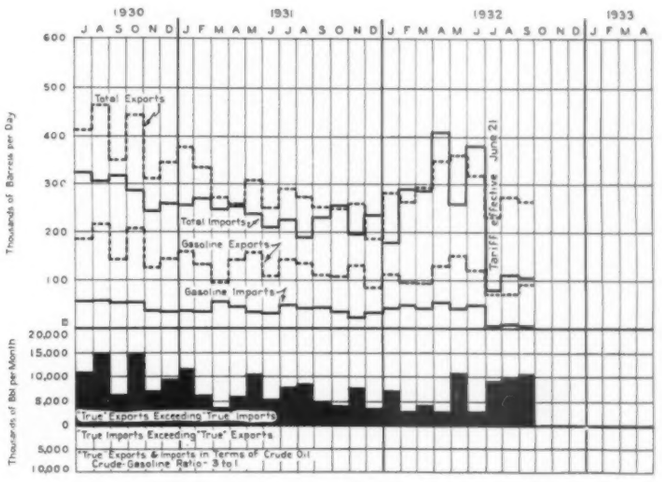
DURING November the Conroe field was definitely extended one mile eastward by the completion of Hamilton et al. No. 1 Moorehead in the J. McHorse Survey, which flowed at the rate of 5,000 bbl. per day through a one-inch choke on one hour test from sand encountered at 5,064 ft. and penetrated to 5,100 ft. The Texas Company's No. 1 Moody in Ransom House Survey extended production limits of the Conroe field slightly south when it was completed for 1,000 bbl. through a 3/8-inch choke from a total depth of 5,100 ft. The most important apparent extension of the Conroe field was made by Plummer and others No. 1 Keystone Mills in the A. S. James (T. & N. O. No. 4) Survey, 3½ miles due south-southeast from the pool, which made 260 bbl. in 15 hours through a 3/8-inch choke from a total depth of 5,009 ft.; this new completion is possibly producing from the sand encountered in the northern portion of the Conroe at about 4,900 ft., about 150 ft. above the main pay, and producing there only gas, the No. 1 Keystone Mills in that case denoting the southern slope of the indicated deep-seated Conroe salt dome.

The total number of completions in the Conroe field reached 60 by December 1, while there were 45 active operations, thus marking the pool as the second most active area in the State of Texas. With the recent dissolution by the Ninth Court Appeals at Beaumont of the injunction granted to the Alpha Petroleum Company restraining the Texas Railroad Commission from enforcing proration orders on company's properties in Conroe field, the production from the pool may be expected to drop from currently produced 20,000 bbl. to about 5,000 bbl. per day.

Conroe field promises at this time to become one of the most prolific fields of the Texas Gulf Coast and is attracting more and more attention. At the close of November the Tidal Oil Company entered the Conroe field on a major scale by purchasing some 2,500 acres, partially developed and mostly proven, from Strake Petroleum, Inc. and from the Heep Oil Corporation for an unofficially reported consideration of $1,500,000; at the same time other major oil interests were reported as attempting to purchase blocks of leases between the field and the recent southeastern extension of Plummer and others.

Greater Seminole—Oklahoma

HILTON-PHILLIPS No. 1 Cook-Bradshaw in section 21–T7N–R4E, an extension well in the St. Louis field, was completed for 2,300 bbl. per day at 4,155 ft. in the Simpson dolomitic sand, but during potential tests the well began cutting about two percent salt water and declined to 1,000 bbl. per day. Several offset locations were made around the



Total U. S. imports and exports and gasoline imports and exports in relation to true exports exceeding true imports.

new completion, but at best the new extension will be of secondary importance.

The Holdenville field in Township 7 north range 8 east, in Hughes County, developed into the state's most active area with some 20 active operations and about 30 oil and gas wells completed. With the producing Booch sand encountered at around 2,900 ft., some completions ranging up to 1,500 bbl. per day, Holdenville presents attractive possibilities to independent operators, though it is of no particular importance and does not present any danger to state's proration because of small per acre recoveries from the highly erratic Booch sand and small areal extent of the field which has been at all times limited by dry holes in all directions. Currently each well in the Holdenville field is allowed to produce 20 bbl. per day and 3 percent of its potential, with the maximum production from the whole field fixed at 500 bbl. per day.

Western Kansas

MABEE and Shell Petroleum Corporation No. 1 Nickel in section 33—T21S–R3W, a recent discovery well reported in the preceding issue of WORLD PETROLEUM, was deepened one foot to 3,468 ft. in the Misner-Hunton formation and increased its production from 500 to 1,200 bbl. per day. Two offsets to the discovery well have been recently completed, Derby Oil Company's No. 1 Hamm for an estimated 2,500 bbl. per day and Mabee and Shell Petroleum Corporation's No. 1 Koehn for about 500 bbl. per day, thus marking the new Nickel pool as potentially an important discovery.

BASIL B. ZAVOICO

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RUSSIA

Official Figures of Soviet Oil Operations*

	Crude Production (Bbl.)	Daily Average (Bbl.)	Run to Stills (Bbl.)	Drilling (Feet)
January ..	13,059,900	421,300	11,927,882	152,533
February .	12,194,000	420,482	11,428,900	193,185
March ...	13,852,300	449,197	12,886,700	240,433
April	13,101,200	436,707	12,737,200	250,854
May	13,437,200	433,461	13,057,800	262,295
June	12,971,700	432,390	12,917,100	248,138
July	12,929,400	416,884	12,256,300	222,342
August ...	12,721,800	410,380	11,725,700	171,665
September	11,598,300	386,610	11,021,500	189,298
October ..	11,928,700	384,797	11,179,700	184,880
Total 10 Months 1932.....	127,794,500	418,998	121,138,782	2,115,623
1st quarter 1932.....	39,106,200	429,738	36,243,482	586,150
2nd quarter 1932.....	39,510,100	434,177	38,712,100	761,287
3rd quarter 1932.....	37,249,500	404,886	35,003,500	583,105

Revised quota 1932—191,800,000 bbl. or 525,400 bbl. daily average.

* Crude oil conversion ratio: seven bbl. = one ton.

Production Increases

TOTAL crude production for all fields of Soviet Russia shows slight improvement over September. The total for October exceeds the September figure by less than 400,000 bbl. of crude of which Baku supplied about 300,000 bbl.

	Bbl.	Percent of plan
Grozneft.....	4,326,000	94.0
Maikop.....	497,000	88.0
Emba.....	135,800	98.0
Sakhalin.....	138,600	98.0
Turcoman.....	68,600	47.0

Total crude production of 11,928,700 bbl. for the month of October represents 82 percent plan fulfillment for the month; the total for 10 months of 127,794,500 bbl. of crude represents about 84 percent of plan fulfillment for the year and is about 1½ percent below the figure for the corresponding period of last year.

The oil industry of Soviet Russia was expected to produce in 1932, according to the plan, 191,800,000 bbl. of crude oil and gas, or about 35,000,000 bbl. more than the production attained last year and three times the crude production of prewar Russia in 1913. During the first months of 1932 it actually looked as if the plan was going to be fulfilled; but in the course of the second quarter of the year various irregularities of operation gave adverse indications. Production fell month by month, none of the oil fields being able to show any increase of production and at present two months before the year is over there are arrears of 15–16 percent in crude production with still larger arrears in drilling, which run in some fields as high as 30–35 percent below the plan.

The arrears of the oil industry are mainly attributable to disorder of organization and insufficient managing ability. Unproductive interruptions of operation owing to breakdowns which could have been prevented easily and lack of spares and repairs are causing enormous losses to all oil fields of Soviet Russia.

Several controlling organizations which have investigated the arrears of the oil industry have reported that they gathered a general impression that the management has not yet learned to get the utmost production from wells under flush production. No distinction is being made between the service given to flush wells and stripper wells and it often happens that small stripper wells get better service than more productive wells.

It has been reported that many shut-in wells result, not from lack of equipment or supplies, but because of lack of flexibility on the part of the management. This has been illustrated by a report from the Ordzonikidze group of oil fields, where one division of oil wells had to be shut down owing to lack of compressor pipes which were obtainable from other divisions of the same group of fields. It has also been found that there is almost no technical supervision in the fields during night shift. This, however, is no surprise since some of the fields are being left with no technical supervision during day shift. It sounds almost unbelievable but it is a fact that the 6th division of the Ordzonikidze oil fields, the very division which is producing over 10 percent of the total crude production of the Baku fields, has been left without the supervision of a petroleum technologist over one year.

The Soviet government and the Communist party have given the oil industry ample warning to improve operating conditions. Supply industries have been ordered to meet the requirements of the oil industry with equipment and tools in order to enable the oil industry to bring under production 250 wells at present shut-in and 400 wells which were recently completed. While everything has been done to comply with these orders, the Mariupol steel mills which had to make delivery of 36,000 tons of casing pipe have so far been able to promise delivery of about 50 percent of that quantity in December. The "Red Sormovo" plant, manufacturing drilling equipment for the oil industry, has declared itself unable to execute orders owing to lack of steel

castings. After intervention of the controlling authorities this plant promised to deliver some drilling equipment early in 1933. The Red Sormovo plant is well equipped to take care of the requirements of the oil industry. It is outfitted with modern machine tools and its producing and operating methods are most progressive. Only the foundry department is unable to meet requirements owing to defective steel for casting.

Low-quality rubber hose is another handicap of the oil industry. While the rubber hose for the oil industry should withstand a pressure test of 65–80 Atm., the hose manufactured in Soviet Russia breaks at 30 Atm. pressure. The oil industry has been accepting defective hose during the past 18 months without lodging complaints, which has misled the rubber industry. Rubber hose turned out is an imitation of a German type but the interval between the armor spirals exceeds 15 mm. which, in connection with weak cloth, results in an inferior product.

At the beginning of the year the oil industry of Baku underwent a complete reorganization in the form of decentralization of management with a view to obtaining greater flexibility of management. The entire system was reorganized into separate technical and economical units. The reported reorganization, however, has proved a mere formality only without actually having changed the order of things at all. Local units have received no rights and no responsibilities. All decisions as formerly are made by the main office even in regard to the most unimportant matters.

An enormous turn over of labor is continuing to affect the oil industry as a result of unsatisfactory living conditions and varying wage scales.

The controlling organization of the Communist party has suggested the mechanization of all forms of operation and for this purpose several devices have been recommended. It has been suggested that drilling arrears could be eliminated by increasing the drilling speed per rig per month. Arrears caused by interruption of operations could be disposed of by means of greater speed during periods of operation and the use of better mud solutions. Shock brigades at Baku and Grozni have displayed an ability to utilize to the greatest advantage all available equipment and such exceptions have to become the general rule in the oil fields of Soviet Russia. Deep drilling is gradually becoming a necessity and most of the resources of crude oil to satisfy the demands in 1933 will have to be drawn from depths between 8,000 and 10,000 ft. for which the present tempo of drilling is far from being satisfactory.

Party members, officials, engineers and technicians, together with shock brigade members who have participated in the Baku oil conference recently, promised Stalin to compensate for all arrears of the oil industry not later than the anniversary of the October Revolution and it is expected that the Baku workers who completed the First Five Year Plan in 2½ years will live up to their promises.

Events of the Month—October

Baku. A gusher has been opened at Ulu Tepe about 20 kilometers from Baku. The crude is of high quality and flows from a depth of 2,460 ft. This is an entirely new oil field, the exploration of which began recently and the deposits are estimated at over 7,000,000 bbl. of crude.

Two new gushers were opened in Kara Chukhur during October each flowing about 2,000 bbl. of crude.

A pipe line from the oil field on the island of Artem to a point in the Caspian sea where a floating terminal has been erected, was completed during October. The distance of the line is 7,544 ft. of 12 in. pipe with all necessary pumping installations. The island is situated in the Caspian sea at a point which makes docking difficult.

The Alco installations at Baku have been completed and the first operating tests have given satisfactory results. The third Pengu Gurvitch lubeoil refining installation has been completed and put into operation. A lubeoil treating plant with a capacity of 1,000,000 bbl. of lubeoil per annum has been completed and put into operation. Only part of the equipment for this plant was manufactured by the domestic machine plants, part of it being imported from the United States. Other completions of refineries in October are four new pipe still units.

Khaborovsk. Cracking units under construction here are Winkler Koch type with a capacity of 1,400,000 bbl. per annum. The units are expected to process Sakhalin oil and will yield gasoline, kerosene, lubeoil, asphalt and coke. The plant is expected to start operation in 1933.

Orsk. The Emba oil trust is erecting Winkler Koch cracking units and two Badger type pipe stills with a total capacity of 10,500,000 bbl. per annum at a cost of 68,500,000 Rbl.

Odessa. A lubeoil compounding plant is to be erected here with a capacity of 1,400,000 bbl. of various lubeoils. In connection with this plant a 1,400,000 bbl. pipe still is to be erected to process bitumen for kerosene. These plants will take care of the requirement of the Odessa region as well as of Ukraine and White Russia. The plants will be ready in 1933.

Krasnodar. Erection of a pipe still refinery and reconstruction of the shell still is proceeding satisfactorily and is expected to be under operation at the beginning of 1933. Capacity of the new pipe still will be 17,500 bbl. per day and will cost 12,500,000 Rbl.

Saratov. Erection of eight cracking units with a total capacity of 8,400,000 bbl. per annum is expected to be completed early in 1933.

Sverdlovsk. Several gushers have been opened in the oil field of Upper Chssoff village. The wells opened are flowing crude under high gas pressure.

Tiflis. The first oil well of Neftedag has been brought under rig. Drilling equipment is being installed at several other places in the field drilling to a depth of 3,280 ft.

Minsk. An expedition of the Soviet Academy of Science has discovered in the Semenski region of Minsk Sapropelit coal deposits which Prof. Soloviеf believes will yield by means of dry distillation products such as gasoline, kerosene, lubeoil, raw materials for lacquer colors, insulating material, and other products. The area where the deposits were found is situated on the shore of a lake where large deposits of coal were also found. The area covers 200 hectares of land and the deposits are situated at shallow depths approximately 23 ft. wide.

Leningrad. The Petroleum Institute has received a report from the geological expedition which has been exploring the area of Kairovka (near Orenburg) that large shale oil deposits have been discovered. Near the village of Djissa a large area has been found to bear signs of rich oil saturation. The locations Kairovka-Djissa are adjacent to Sterltamak and form an extension of that field.

KHARKOFF. Sixth Chemical Mendelleef Conference was held during October in Kharkoff. Over 2,000 chemists representing research institutions, universities, chemical industries, plants and laboratories were invited to participate in the conference. The addenda of the conference covered such problems as: raw materials for metallurgy and fuel; production of synthetic fertilizers; chemical refining and treating of oil, coal and peat; production of motor fuel and lubeoils from coal shale and peat and the processing of these for ammonium, benzol soluble liquids, impregnating solutions, disinfectants, etc. Further subjects for discussion were: raw material for cellulose pulp and paper, rayon, acetate, rosin, wood alcohol, formaline, tanning products, etheric oils, etc. Prof. Fersman presented a paper on new principles in research and utilization of mineral and organic raw materials. The machine industry for chemicals; standardization of equipment; corrosion of metals and chemical influence on wear and tear of equipment were discussed. Over 30 Commissions were formed to cope with outstanding problems, such as hydrogenation, utilization of gases, organic catalysts, etc. Among the foreign countries represented were J. and F. Perren (France), Gronter and Greenwood (England), Jacomo Fauser (Italy) Ponet, Lisegang, Klages, Hess, Pitch and Neuberg (Germany). The next VII Conference is to take place in 1934 in Leningrad.

STOCKHOLM. According to Soviet Russian sources of information a campaign has been initiated in Scandinavia against Soviet oil. The association of motor car owners of Copenhagen have united similar organizations in Norway, Sweden and Finland, all of which had representatives convene in Stockholm for the purpose of united action. The chairman of the convention stated that the success of the organization will depend to a great extent upon the assistance which the respective governments of the countries will render to this new organization. The Swedish group hopes to induce the government to form a petroleum monopoly.

MONTEVIDEO. The Government of Uruguay is said to be willing to spend $1,000,000 for the erection of a refinery which will process Soviet oil.

SHUBAR KUDUK. Some time ago a gusher was opened in this region of the Emba district, at a location that had been under exploration since 1930 and it has been established that at a depth of 1,148 ft. the incline is of a salt formation which possesses sloping wings. The stratum extending over a distance of 10 kilometers has revealed no bottom at a depth of 8,250 ft. Two locations were discovered here situated in the Perm stratum, although it has been held that the oil deposits of Northern Emba are of the Yura character. The salt dome discovered has shown on the northern wing an area of 1,640 ft. about 30 to 32 ft. wide wedged into the salt deposits at a depth of 1,230 ft. where 91 bbl. of crude per day were produced. The crude is of 0.890 gravity. The second location is situated on the southern wing of the dome over an area of 1,312 ft. and consists of oil sands about 130 ft. wide. Already from a depth of less than 50 ft. a gusher has been opened flowing about 140 bbl. of oil per day of a gravity of 0.900. The crude contains a good lubeoil. Geological exploration has established that the southern location is bordering on the horizontal balcony of the incline of the salt deposits and it is very likely that the area will cover about 10 square kilometers.

Laboratory tests of Shubar Kuduk crude have shown the following contents: over 1 percent of paraffin, about 30 percent of tar, about 1 percent of asphaltenes and 0.5 percent of sulphur.

J. WEGRIN

MEXICO

Government Loans

SEVEN million dollars have been deposited in New York banks to the account of the Mexican government, the money coming from Mexican Eagle Oil Company, Huasteca Petroleum Company, and Pierce Oil Company in the form of advance tax payments for forty months starting this month and ending in March 1936. Mexican Eagle and Huasteca made payments of $3,000,000 each and Pierce advanced $1,000,000 which is to be used by the Mexican government for various credit expansion projects. Interest is set at 4.78 percent. Negotiations with other petroleum companies, notably Consolidated Petroleum Company, for advance payment of taxes are said to be underway and are expected to be completed before the end of the year.

Production and Exports

TWO and a half percent decrease in production for 1932 compared with 1931 is estimated by the Ministry of Industry, Commerce and Labor. This decrease places estimated 1932 output at approximately 32,000,000 bbl. for the year.

Crude oil exports for September are placed at 1,402,242 bbl. against 1,576,670 bbl. in August by the Ministry.

The government is said to have under consideration a plan for the elimination of export taxes, this revenue to be replaced by an annual tax on oil lands under exploitation. The tax would amount to about six cents per 2.47 acres and would meet with the approval of most oil companies operating in Mexico.

Exploration

APPLICATIONS for drilling and exploration permits are becoming more frequent indicating interest in the northern section of Mexico along the United States border where a continuation of the Texas deposits are expected to yield considerable quantities of excellent oil. Authorizations have been granted the Compania Carbonifera de Ciudad Mier to drill on the outskirts of Ciudad Mier and to Compania Petroleo Titania to drill in Reynosa municipality near the U. S. border.

In Vera Cruz permits for exploration have been granted the Penn Mex Fuel Company, Transcontinental Petroleum Company and Jesus Ferral in the Ocotepec municipality. Green and Company have received similar permits applying to the Tihuatlan municipality. Mexican Eagle Oil Company (Royal Dutch Shell group) has begun drilling its twenty-third well in the El Burro zone in Vera Cruz and the Administrative Control of National Petroleum (federal government agency) has received permission to drill in the federal oil zone on the left bank of the Panuco River, Vera Cruz.

Other permits have been granted to unnamed companies financed by Mexican capital according to the petroleum department.

International Petroleum Company has brought in a well with an initial daily production of 990 bbl. from a depth of 2,170 ft. on the right bank of the Tamesi river, Vera Cruz. This is the first well in this region.

Litigation

AN INJUNCTION has been granted the Huasteca Petroleum Company against the embargo placed on two lots of its Cerro Azul property by the Vera Cruz state government on the grounds that the oil company failed to pay $37,000,000 in taxes and royalties. This embargo has come as a surprise to officials of other oil companies in view of Huasteca's plans for drilling an additional twenty wells in this region. The state government is now attempting to obtain an embargo on all the holdings of the Huasteca company and on its retail outlets.

Labor

SHARE the work movement has spread to Mexico where several labor unions have asked the Ministry of Industry, Commerce and Labor to install a system of six-hour shifts in all new plants with a view to spreading the work over a greater number of workers. Existing plants are to be left on the old system and the hourly wage is to be left at the present rate if the system is adopted.

Application to reduce the number of workers in plants and offices received from the Huasteca Petroleum Company has been taken under consideration by the Federal Board of Conciliation and Arbitration. DOUGLAS GRAHAME

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CANADA

Imports

IMPORTS of crude into Canada were sharply down in September being 2,197,516 bbl. compared with 2,565,045 bbl. in August, and 2,758,131 bbl. in September 1931.

Source of Canadian Crude Imports September

	Barrels
United States	1,676,808
Trinidad and Tobago	30,202
Colombia	130,611
Peru	150,072
Venezuela	219,823

Total imports for the twelve-month period ending September 1932 were 27,834,259 bbl. compared with 28,690,368 bbl. for the corresponding period ending September 1931.

It is interesting to note that importations from Russia, which were the subject of so much controversy, were entered under the heading of "Crude petroleum not in its natural state." The amount imported under this heading from Russia during September was 73,163 bbl.

Gasoline imports were sharply up at 261,818 bbl. compared with 188,244 bbl. in August. Total gasoline importations for the twelve-month period ending September 1932 were 2,246,834 bbl. compared with 2,713,074 bbl. during the corresponding period ending September 1931.

Removal of Dumping Duties

ON OCTOBER 20 the Canadian Government authorized the removal of the dumping duties on gasoline imports. The tax against gasoline imported into Canada is 2½ cents per gallon, but in addition to this a dumping duty was previously applied. By this method the fair market value of gasoline in various United States centers was fixed by the Canadian Government for duty purposes, and the difference between that price and the price to the importers was added as a dumping duty. It has been estimated that this averaged around 2 cents per gallon, and naturally importers should be able to bring in United States gasoline at prices varying from one to two cents cheaper than formerly.

The dumping duties were a bone of contention during the inquiry into gasoline prices that was held during last winter. It was then contended that without dumping duties gasoline would be brought into Canada at cut-throat prices which would seriously dislocate the domestic price structure. On the other hand it was contended that, in cases where United States companies had subsidiaries in Canada, the fixed price of the Department of Inland Revenue was charged rather than the prevailing price, and that thus the dumping duty was avoided, the subsidiary simply paying the parent company the difference in price. The Government states that very little revenue has been obtained from the dumping duty, and this is one of the reasons for its cancellation, though public interest is also advanced as a contributing factor.

Russian Crude

IMPORTATIONS of Russian crude have continued to absorb a good deal of public attention, particularly as a second tanker has unloaded at Montreal. This second consignment is a part of the agreement entered into by the Aluminum Company of Canada, and Soviet Russia, whereby wire is exchanged for crude oil. Questions in the Canadian House of Commons brought forth a statement by the Prime Minister in which it was stated that the shipments in question were being investigated, as it was believed that the oil was not crude in its natural state, and therefore was subject to duty. The fact that the importations in September were not listed as true crude bears out this belief. The Premier also remarked that the possible effect of these importations upon shipments from British sources was being investigated in accordance with the United Kingdom-Canadian Trade Agreement. Discussion in Parliament was somewhat acrimonious, but was almost entirely political in viewpoint. Meanwhile it is interesting to note that it is stated that the refinery, which originally was the third party involved in this trading deal, has withdrawn from it.

General

BRITISH American stockholders had a meeting at the end of October to vote on a by-law creating $5,000,000 of 6 percent convertible debentures to rank with $4,792,000 now outstanding with maturity in 1945. The offering carries right of conversion to stock. Proceeds are to capitalize 1931 expenditure on tankers, bulk storage plants, and the Montreal refinery, and also two new tankers bought this year.

At the request of 93.03 percent of the eligible employees, Imperial Oil Limited has inaugurated its fourth cooperative investment trust. As a result of previous trusts, employees of the company now hold 1,939,639 of the 26,817,825 no par value shares of the company's stock.

Work is proceeding well within schedule on the new refinery of the Shell Oil Company of Canada Limited, situated at Montreal East, and it is expected that the

plant will be ready to operate before the end of the year.

L. R. Olsen and associates of General Petroleums Limited have commenced work on the construction of their new refinery at Edmonton, Alberta. The old refinery building on the south Edmonton site is being remodelled and new refining facilities and storage equipment will be installed.

R. C. ROWE

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SHIPPING

A PAPER read by R. L. Hague of the Standard Shipping Company before the Society of Naval Architects and Marine Engineers, New York, describes tanker propulsion by geared turbines taking steam from high pressure water tube boilers as used recently by Standard Shipping in contrast to European firms which favor Diesel propulsion. Mr. Hague also discusses briefly the propelling motors of some of the Diesel engined vessels belonging to the same fleet.

The Standard Shipping Company has been interested in Diesel powering from the year 1912 and one of the earliest Diesel-driven vessels, the WILHELM A. RIEDEMANN, ex-ZOPPOT, is still in successful operation, with the original engines. The crankcases, originally of the open type, were closed in 1927, with the addition of forced lubrication. Since these original Diesels, which have proved successful, two vessels, the PROMETHEUS and the PHOEGUS, of over 13,000 tons d.w.c., ordered as steamers, were completed in Germany in 1923 as Diesel-propelled vessels. Subsequently, contracts were placed for 12 tankers of 12,000 tons deadweight capacity, and two of 15,000 tons, each being powered with two single-acting air-injection engines. Thereafter, five additional steam tankers were converted to Diesel drive by the installation of Krupp single-acting engines. In 1929 the lubricating-oil carrier MS. HANSEAT was engined with a seven-cylinder single-acting two-cycle Vulcan M.A.N. Diesel of 3350 b.h.p. During recent years the Diesel engine has been used almost exclusively in the foreign tonnage constructed by the affiliated companies. The MS. E. T. BEDFORD was the first of the Standard Shipping Company's vessels to be converted to Diesel drive. Prior to conversion, two triple-expansion steam engines, each rated at 1750 i.h.p. at 90 r.p.m., propelled this vessel. In 1926 this power plant was replaced by two-cycle four-cylinder single-acting Busch-Sulzer Diesels, each capable of developing 1500 b.h.p. at 90 r.p.m. The auxiliary units consist of three 150-b.h.p. Diesels, one of which operates a 100-kilowatt generator, the other two a 50-kilowatt generator and an auxiliary air compressor respectively. All engine-room machinery, including the steering-gear, is electrically operated, the only steam pumps installed in the machinery space being provided for emergency use.

With these and similar details he gives a fairly comprehensive sketch of the Company's motor ship policy, and those interested in the powering of tankers will note with some surprise, perhaps, that he is in favor of geared turbine tankers on grounds of first cost. The departure from an all-Diesel ship, he states, not only greatly reduces the first cost of the tankers by the elimination of the very costly Diesel and electrical auxiliaries, but a large reduction in cost of operation, including maintenance and repair, is also expected. Descriptions of the steam plants on the tankers G. HARRISON SMITH and W. S. FARISH are very complete and form unique descriptions of high pressure steam propulsion jobs adapted to the special and rather difficult requirements of oil transportation.

Charter Market

GENERALLY speaking, the charter market during the past month has remained very quiet, without any encouraging rise in rates. The most recent form of activity was for the carriage of dark oils from Gulf and Black Sea towards the beginning of November. Recently news has come to hand of the concluding of several fixtures, both for clean and for dark oil, but these are at very unsatisfactory rates. One of the most important features of recent chartering is the large number of modern motor vessels which are beginning to dominate the charter market. This applies to the dirty oil trade no less than to the clean oil trade, and it will be remembered that the dirty trade was at one time considered for many obvious reasons to be the prerogative of the steam tanker. Modern developments in the way of waste heat boilers have somewhat changed the position with the result that the difficulties formerly existing in the way of supplying steam for tanker heating have been eliminated. As far as the clean oil trade is concerned, motorships are used almost exclusively, and one chartering of particular interest is that of the Westfal-Larssen-owned 10,000 tonner ORKANGER, which has been fixed California/U.K. November at 14/6d. The 8500-tonner VANJA has also accepted 10/3d. Gulf/Rio with various options for next month.

Launches and Completions

STANDARD Shipping Company still continues to take delivery of the remaining units of its large program of Continental tanker construction, both from German and Italian yards. These vessels are among the largest tankers in the world, although not the fastest. With the completion of the whole program there will be virtually a cessation of tanker construction throughout the world.

A. C. HARDY

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AN ISLAND of steel was completed during November for Indian Petroleum Company on the Shudde tideland permit offshore from the Seacliff oil field west of Ventura, California. It forms the site of a well spudded in on November 12th. This is the first project to be undertaken out in the ocean without a pier or connecting link with the shore. Getting along without the pier makes possible a saving of nearly a quarter million dollars, since the steel island was constructed at a cost of $75,000, whereas neighboring wells with piers to the shore cost from $300,000 to $325,000 to rig up before being spudded in.

Materials and supplies for the new well are shipped by boat from shore to the steel island. The site is equipped with two mud tanks which may be used later as storage tanks if production is obtained. A pipeline is to be laid either from General Petroleum Corporation's pier 1700 ft. distant, or else direct to shore.

A novel feature of the steel island is the metal sumphole, which is 9 ft. in diameter and 9 ft. high. There is a scupper floor to divert sump and drainage. Seven gasoline engines drive the rotary drilling outfit, each engine capable of developing up to 120 h.p.

Foreign Oil Legion

COLONEL FRANK DRAKE, chairman, Gulf Refining Company, sailed from Italy on the S. S. REX during the last week in November on his return to the United States.

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A. W. ROGERS, director, Trinidad Leaseholds, Ltd., is visiting the company's refinery in Trinidad at present.

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E. W. MARLAND, well-known oil man of Ponca City, Oklahoma, has been elected representative of the eighth district of Oklahoma to the House of Representatives. Mr. Marland, who built up oil holdings valued at over $80,000,000 dollars and lost most of his interests in these properties in 1929–30, defeated M. C. Garber, Republican candidate for representative from the eighth district. Mr. Marland ran as a dry Democrat.

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VISCOUNT Bearsted, M.C. chairman, Shell Transport and Trading Company Ltd., arrived in New York from London early in November. Lord Bearsted left New York on his return to London later in the same month.

© Wide World Photos

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Viscount Bearsted, M.C. Shell Transport and Trading Company.

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B. R. EMRICK, Chief Technical Adviser of the Burmah Oil Company, sailed from New York on the S. S. BERLIN on November 10th. He has visited the major oil fields in this country on an inspection tour.

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H. S. AUSTIN, director of pipeline construction, Iraq Petroleum Company, recently returned to London from Iraq.

JULES MENY, chairman, pipeline committee, Iraq Petroleum Company, has returned to England from Iraq.

Photographed by the editor

Peter Hurll and H. G. Seidel, directors, Iraq Petroleum Company.

D. ELLIOTT ALVES, chairman of the voting trustees of British Controlled Oilfields, announces that for health reasons he has been compelled to resign from all civic, official and public duties.

T. DEWHURST, chief geologist, Burmah Oil Company, London, has been elected president of the Institution of Petroleum Technologists (Great Britain).

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M. N. Constantinescu, director, Creditul Minier, Roumania.

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THABIT ABDUNOOR BEY, Iraq Government director of oil fields, has just completed a prolonged tour of oil producing countries.

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JAMES KENNEDY, marine manager of the Gulf Refining Company, has returned to New York following a visit to England.

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E. F. H. MERCIER and J. A. Merry, chairman and managing director respectively of Compagnie Francaise des Petroles, have returned to Paris from Iraq.

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ASHLEY CARTER, British representative of the Oil Well Supply Company, recently returned to London after a two weeks' trip through the German oil fields.

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F. Godber, director, Royal Dutch-Shell group

Photograph by the editor

FINANCE

New York: November

THE passing of the election and the overwhelming victory of the Democratic Party were followed by a rally in the stock market lasting for several days. The upturn in prices, however, was largely technical and was immediately followed by a reaction which erased practically all of the earlier gains. Trading volume has been largely professional in character with very little public participation. Perhaps the most significant factor in the composition of recent markets has been the absence of any important liquidation and the inability of sales for the short account to precipitate any important decline. On the basis of the stock averages the market has been backing and filling in an area about halfway between the lowest levels of last July and the top of the movement reached in early September.

In the face of the usual seasonal decline in business activity the action of the market is not at all surprising. That it has managed to give as good an account of itself as it has is reassuring in view of the major uncertainties which have been overhanging it in the form of a change in the national administration, war debts, convening of Congress and the necessity of finding new sources of revenue to balance the budget. The change in administration should furnish no cause for alarm to business as the party platform is conservative in all respects and Governor Roosevelt has already made his position clear on such major issues as a sound currency and the bonus while in one of his campaign speeches he went into great detail regarding the necessity for a constructive program to rehabilitate the railroads of the country. The war debt question has occupied the center of the stage and until it has been clearly established how the matter of the December payments of the Allied nations is to be treated not much progress may be expected in industry or the stock market.

There is now no intention on the part of any of the leading debtors to default and in view of the shortness of time to December 15 it is unlikely that any temporary solution regarding the instalments due at this time can be found with the result that it is believed in well informed sources that payments will be met promptly. This will allow a reasonable time to elapse before the next instalment matures when a review of the entire debt status and its disposition on an equitable basis may be attempted.

Next to the settlement of this question is the need for an early balancing of the national budget. This is essential to lasting economic recovery and is a subject on which the administration and Congress must concentrate every effort in the next three months. It involves not only drastic economies by the government, but the imposition of additional taxes of a character that will not lay too great a weight on business or the individual taxpayer.

Progress toward the solution of these major problems would go a long way toward clearing the ground for business recovery and it is not too much to hope that by next spring major readjustments will have been largely completed and that the sun will have broken through the economic clouds.

THE latest offer of Standard Oil Company of California for the properties of Richfield Oil Company of California has received the approval of the three principal committees representing the bank creditors, the Richfield bondholders' and unsecured trade creditors. Approval of the offer by these committees, however, does not necessarily mean that a sale of the properties will be concluded shortly, the door remaining open for other offers which may be forthcoming in the near future as described in detail elsewhere in this issue.

REPORT of Shell Union Oil Corporation for the third quarter is indicative of the improvement made by leading oil companies over the same period of 1931. After depreciation, depletion, taxes, interest and all other charges the company reported a net loss of $162,593 as compared with net loss of $2,681,620 in the September quarter of last year. For the nine months ended September 30, net loss was $3,098,020 after all charges, as compared with net loss of $23,641,126 in the similar 1931 period. Not included in these results was a profit of $1,629,345 in the third quarter of 1932 and $6,051,668 in the first nine months of 1932 from the purchase below par of the company's debentures. This profit is realizable upon cancellation of the purchased debentures. Cash and call loans as of September 30, 1932, amounted to $32,341,141 as compared with $35,740,457 one year earlier.

New York Stock Prices

1932 High	1932 Low	Current Div. $ per Annum	Stock (Par Value $)	Oct. 17 to Nov. 19 Sales (Shares)	First	High	Low	Last	Net Change[1]
21⅞	8⅝	1.00	Atlantic Refining (25)	70,700	16⅜	18	15¼	16⅞	+ ⅜
7	3⅜	....	Barnsdall (25)	44,700	4½	5⅛	3⅞	4½	— ⅛
1¼	¼	....	Colon Oil (No)	1,100	¾	¾	½	½	— ⅜
9	4	....	Consol Oil (No)	114,100	6¾	7⅛	6	6½	— ⅛
9⅜	3⅝	....	Continental Oil (No)	57,000	6⅛	7	5½	6	— ¼
3⅛	1¾	....	Creole Petroleum (No)	13,500	2½	3	2½	2⅞	+ ⅜
44¾	23	....	Gulf Oil Corp. (25)	13,900	29⅝	33⅞	28	31	+ ¼
55	35⅝	2.00	Humble Oil & Ref. (25)	1,300	40	47	40	45⅛	+6
10⅞	6¼	0.50	Imperial Oil, Ltd. (No)	10,000	8¾	8⅞	7⅞	8	— ⅜
1⅝	1	....	Indian Refining (10)	6,700	2	2¾	1⅝	2	+ ⅛
12¼	8	1.00	International Petr. (No)	14,600	9¾	10½	9¼	10½	+ ½
11	5	0.40	Ohio Oil (No)	46,600	8½	9⅛	7⅝	8⅛	— ⅜
14½	7¼	0.80	*Pan Amer. P. & T. 'B' (50)	1,500	12	12½	12	12¼	+ ⅛
8⅛	2	....	Phillips Petr. (No)	54,700	5½	6½	5	5⅞	+ ¼
6½	2⅞	....	Pure Oil (25)	15,000	4¼	4⅞	3⅞	4	— ½
1⅜	¼	....	Richfield Oil (No)	7,300	⅝	⅞	½	⅝	.....
23¾	12⅛	†0.81	Royal Dutch N. Y. (13⅜)	11,100	19¼	20	17½	19⅛	—1
19¼	6⅝	0.40	Seaboard Oil (No)	146,200	12½	18½	11	18½	+5½
8¾	2½	....	Shell Union (No)	48,100	6	7	5¾	6	— ¼
5¾	2½	....	Skelly Oil (25)	3,500	3⅞	4	3	3½	.....
12¼	5¼	0.40	Socony-Vacuum (25)	159,200	9½	10¼	7⅜	8¾	— ¾
31⅞	15⅛	2.00	Standard Oil of Calif. (No)	88,600	25	27⅝	23⅜	26	+ ⅞
25⅛	13⅛	1.00	Standard Oil, Ind. (25)	142,900	20¾	23¾	20¾	22¾	+1⅞
16½	7	....	Standard Oil, Kansas (25)	2,700	12	12½	11¼	12⅛	+ ⅛
15⅞	8⅞	1.20	Standard Oil, Ky. (10)	6,200	11¾	12¼	11⅛	11⅝	+ ⅛
37⅜	19⅞	§2.00	Standard Oil, N. J. (25)	158,100	29⅝	33⅜	28⅝	31¾	+1⅜
39⅞	24¾	1.00	Sun Oil (No)	800	38	38	36	38	— ⅛
18¼	9¼	1.00	Texas Corp. (25)	128,500	13	16⅛	12⅜	15⅞	+2½
5⅜	2	....	Tide Water Assoc. (No)	29,100	3⅜	4⅝	3¼	4	+ ⅛
13⅞	8⅛	1.00	Union Oil of Calif. (25)	9,800	11⅛	12	10⅛	11⅝	+ ⅛
1 1/16	⅛	....	Venezuelan Petr. (5)	1,500	5/16	7/16	¼	7/16	+ ¼

[1] Since close of last month's table. †Paid for 1931—no regular rate. § Including extras. * Ex Pan American Foreign.

RECENT dividend declarations have been mixed in character, the two leading Standard Oil units, New Jersey and California maintaining their rates, while the third outstanding member of the group, Socony-Vacuum, made a reduction in the rate of disbursements. The latter company declared a dividend of 10 cents payable December 15 to stock of record November 18. Including this payment the company has voted 75 cents a share in dividends this year. On March 15 a dividend of 25 cents was paid, followed by two payments of 20 cents and the latest disbursement of 10 cents. Although the company does not make interim earnings reports it is reasonable to suppose that it has shared in the improvement witnessed in the domestic oil business although in the foreign division the situation has not been as favorable.

OHIO Oil, which earlier in the year resumed dividends at the rate of 20 cents quarterly, recently cut the payment in half by the declaration of a 10 cent dividend. The president stated that the action of the board in ordering the reduced disbursement was taken after a careful review of the estimated earnings for the fourth quarter of 1932 which reflect a decline due to drastic proration in the various fields in which the company produces, purchases and transports crude oil. The company reported for the first nine months of the current year a net profit of $6,275,546 after all charges, equal to 56 cents a share of common stock. Net income for the third quarter amounted to $2,177,348, equal to 20 cents a share, comparing with $2,442,092, or 24 cents a share in the preceding quarter, and $1,656,106, or 12 cents a share in the March quarter.

PHILLIPS Petroleum reported net income of $1,186,698, equivalent to 28 cents a share, for the quarter ended September 30, 1932, comparing with net profit of $1,324,430, or 32 cents a share, in the preceding quarter and net profit of $263,900, or 6 cents a share, in the September quarter of last year. For the first nine months of the year net income after all charges amounted to $374,206, equal to 9 cents a share, as compared with a net loss of $2,410,253 in the corresponding period of 1931. Financial position was improved during the nine months' period with working capital showing an increase of $7,400,000. Current assets on September 30 were more than twice current liabilities, with inventories carried at more than $1,000,000 under September 30 market value, compared with a current ratio of 1.31-to-1 at the end of last year. Bank indebtedness was reduced about $7,500,000 to $5,212,000 which was more than equaled by cash on hand. In the same period the company retired $1,476,000 of funded debt and had on hand $2,050,000 of its bonds for future retirement.

SEABOARD Oil Company of Delaware and subsidiaries (formerly Mexican Seaboard Oil Company) reported for the third quarter net profit of $237,388 after all charges, equivalent to 19 cents a share, as compared with $194,471, or 16 cents a share in the preceding quarter and $54,242, or 4 cents a share in the September quarter of last year. For the first nine months net income amounted to $612,198 after taxes and charges, equal to 49 cents a share comparing with $72,480 or 6 cents a share in the corresponding period of last year. Current assets as of September 30, 1932, excluding investment in the company's own stock, amounted to $2,273,707 as against current liabilities of $224,949.

ALTHOUGH reported income after all charges of Standard Oil Company of California failed to cover dividend requirements in the current year the company has maintained the regular 50 cent quarterly disbursement. Net income for the first nine months of the current year amounted to $12,013,385, equal to 92 cents a share as compared with $11,941,787, or 91 cents a share in the similar period of last year. Actual cash income, however, was over twice the reported results as bookkeeping charges for depreciation and depletion were in excess of $13,000,000 in the first nine months of 1932 so that actual cash income on a per share basis was around $1.85 as against dividend requirements in the period amounting to $1.50. For the third quarter the company reported net income of $5,096,842 after depreciation, depletion, amortization, federal taxes and inventory revaluation, equivalent to 39 cents a share as compared with $3,986,302, or 30 cents a share in the preceding quarter and $6,297,819, or 48 cents a share in the September quarter of last year.

THE Stanolind Crude Oil Purchasing Company, a subsidiary of the Standard Oil Company of Indiana, has called for redemption on January 16, 1933, at 101½ and interest, all of its series A 5½ percent bonds outstanding. At the end of last year the company had $32,081,000 of these bonds outstanding, due January 1, 1938. On August 4 of the current year $10,000,000 of the bonds were retired.

CONTINENTAL Oil Company (Delaware) reported net income of $358,451 after all charges, for the quarter ended September 30, 1932. This was equivalent to 7 cents a share and compared with net income of $1,616,346, or 34 cents a share in the preceding quarter and net loss of $2,955,322 in the September quarter of last year. For the nine months ended September 30, 1932, consolidated net income was $101,949 after all charges, equal to 2 cents a share, comparing with net loss of $9,484,163 in the corresponding period of last year. Balance sheet revealed a strong financial position with current assets of $32,882,999, including $7,978,083 cash, as against current liabilities of $4,571,150, or in the ratio of 7.19-to-1. During the first nine months of 1932 the company purchased $1,109,650 of its own bonds.

THIRD quarter report of Tide Water Associated Oil Company showed a slight recession from profit reported in the preceding quarterly period but an improvement over the similar period of last year. For the three months ended September 30, 1932, net income amounted to $1,395,670 after all charges, equal to 8 cents a share as compared with $1,572,097, or 10 cents a share, in the preceding three months period and $1,253,175, or 3 cents a share, in the September quarter of last year. For the nine months net profit amounted to $3,495,370, equivalent to 9 cents a share of common stock as compared with $175,700, or 24 cents a share of preferred stock in the similar 1931 period.

C. C. BAILEY

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London: November

QUIET business and irregular price movements have been the general experience in the oil share market during recent weeks. The dividend announcements issued late in October, including those of the Royal Dutch, Shell, and Venezuelan Oil Concessions, although equal to expectations, failed to prevent a sagging tendency. Since then, spasmodic recoveries have taken place, but the market has not developed a definite trend, and most prices are lower than they were a month ago. In the absence of a definite impetus from British investors, quotations have been influenced largely by events overseas. London's interest in the American end of the industry has increased rather than diminished, and although the Socony-Vacuum and other dividends were depressing, encouragement was drawn from the relatively small loss of Shell Union for the September quarter, partly on account of the Company's association with the Royal Dutch-Shell Group. Fluctuations in crude output and petrol stocks in

London Stock Exchange Prices

1932 High	1932 Low	Last Year's Div. % per Ann.	Share	October 14–November 11 First	High	Low	Last	Change
1 1/16	9/32	....	Anglo-Ecuadorian	1 9/32	1 9/32	1 7/32	1 7/32	− 1/16
1 7/8	3 1/32	10	Anglo-Egyptian "B"	1 3/4	1 3/4	1 9/16	1 11/16	− 1/16
2 29/32	1 3/16	5	Anglo-Persian	2 9/16	2 9/16	2 5/16	2 3/8	− 3/16
1 1/8	1 3/32	20	Apex Trinidad (5s.)	1 1/16	1 1/16	1	1 1/32	− 1/32
3/4	3/8	....	Attock	1 7/32	1 7/32	1/2	1 7/32	.....
9/16	3/16	5	Brit. Borneo (6s.)	1 7/32	1 7/32	1 3/32"	3/4"	− 5/32
1/4	1/8	5 1/4*	Brit. Burmah (8s.)	7/32	7/32	7/32	7/32	.....
1/4	1/16	....	Brit. Controlled ($5)	7/32	7/32	3/16	3/16	− 1/32
1/2	1/16	....	Brit. Controlled Pfd. ($5)	1/2	1/2	15/32	15/32	− 1/32
3 15/32	1 13/16	17 1/2	Burmah	3 1/4	3 9/32†	3 1/4†	3 7/32†	− 1/32
7/16	7/32	....	Canadian Eagle (No par)	1 1/32	1 1/32	9/32	9/32	− 1/16
7/8	1/2	....	Creole (No par)	3/4	13/16	1 1/16	3/4	.....
7/32	1/16	....	Kern River (10s.)	5/32	5/32	3/32	1/8	− 1/32
2 5/16	3 1/32	12 1/2	Lobitos	1 31/32	1 31/32	1 27/32	1 15/16	− 1/32
1 5/32	1/4	....	Mexican Eagle ($4 Mex.)	3/8	3/8	1 1/32	3/8	.....
19 1/2	4 1/2	....	Pan American "B" (New)	17	18 3/4	16 3/4	18	+1
1 1/16	5/32	....	Phoenix	1 9/32	5/8	1/2	9/16	− 1/32
20 1/2	10 1/4	6	Royal Dutch (fl. 100)	17 3/4	18 1/4	16 1/2	17 1/16	− 1/16
2 23/32	1 7/16	7 1/2*	Shell Transport	2 1/2	2 1/2	2 1/4	2 3/8	− 1/8
9/16	3/16	4	Steaua Romana	7/16	15/32	3/8	7/16	.....
2 3/4	1 1/4	12 1/2	Trinidad Leasehold	2 5/8	2 3/4	2 13/32	2 11/16	+1/16
9/32	3/32	....	Untd. Brit. of Trinidad (6s. 8d.)	7/32	1/4	7/32	7/32	.....
1 23/32	7/8	10	Venezuelan Oil Concessions	1 1/32	1 23/32†	1 1/2†	1 21/32†	+1/16

Nominal value of shares £1 unless otherwise stated by bracketed figures.
* Denotes Tax-free dividend. † Denotes "Ex-dividend" price. " Denotes "Ex-rights."

the United States have been too inconclusive to leave any definite impression on the market here, but attention is still directed to recent evidence of a lack of unanimity in price policy among leading American companies. In view of support recently forthcoming for the London share market, and ready absorption of Continental sales, the market may be classed as steady, with a possibility of a moderate rise on any favorable news. The advance already achieved on balance this year, however, must necessarily limit scope for further improvement in the immediate future.

RESULTS achieved by Trinidad Leaseholds during the year to June 30 last provide a striking contrast with the experience of the great majority of petroleum companies. Profits were more than doubled, and a final dividend of 7½ percent brought the total distribution up to 12½ percent, compared with 5 percent for 1930–31. Crude production, purchases, throughput and sales were all slightly lower, but oil profits and other revenue increased from £345,103 to £486,776. This was largely due to benefits derived by the exchange premium on sales effected on a dollar basis. Working costs were reduced, and substantial economies and decreased expenditure effected in other directions, with the result that net earnings increased from £125,984 to £272,719, the latter figure being equal to 20.793 percent on the issued capital. After provision for the dividend and necessary writings off, a surplus of £63,999 is carried forward, against £30,151 a year ago. The accounts show that the financial position of the company has been strengthened considerably, oil stocks, Government securities, cash and debtors aggregating £985,951, and showing a surplus over current liabilities of £518,524. This compares with £293,029 at June 30, 1931. The directors report that demand for the company's "Regent" motor spirit has greatly increased, and that additional depots and transport are being provided. Benefit should be derived during the current financial year from the recent advance of 3d. per gallon in British petrol prices, as well as from the upward trend in other markets and from the preference on Empire oils in Canada. These factors have already been partly discounted in the market price of the £1 shares. At over 2½ with a 12½ dividend, the latter are on a yield basis of less than 5 percent.

INTEREST in the offer of new capital by British Borneo Petroleum Syndicate lies in the possibility that the additional funds will be used in developing the company's newer interests. In addition to its shareholdings, including a substantial investment in Apex (Trinidad) Oilfields, the Syndicate draws a royalty from oil produced in the State of Brunei, Borneo, by British Malayan Petroleum Company, a subsidiary of the Royal Dutch-Shell Group. One of its latest acquisitions was a concession in the State of Brunswick, Germany, in which it participates jointly with Anglo-Persian, the latter undertaking technical direction. British Borneo's new issue, consisting of 333,340 shares of 6s. each, and representing the whole of the unissued portion of the authorised capital of £250,002, was offered at par to shareholders in the proportion of two new shares for every three shares held. The old shares participated largely in recent market activity, and advanced from 3/16 to 9/16 between June and October. As usually happens, the announcement of the new issue, although the latter was made on bonus terms, brought back the price of the existing shares, which show a substantial fall during the past month. The valuation placed on the "rights" to the new shares was 1/32.

ORIGINALLY formed to operate properties in California, Kern River Oilfields is at present finding its outside interests a burden rather than an advantage. Operations in Roumania, in particular, have imposed a strain on the company's finances. For the third year in succession, the company failed to earn sufficient to provide for necessary depreciation during the twelve months to May 31, 1932. After charging £109,363 for depreciation in California, Mexico and Trinidad, the loss was £46,033. This was met by the transfer of £50,000 from taxation suspense account, and a surplus of £46,019 brought into the accounts was thus increased to £49,987. Results for the past year are not strictly comparable with those for preceding periods, since the losses of the Roumanian subsidiaries are excluded from the accounts. These losses totalled £24,382, and after charging £80,890 depreciation, the total deficit on the Roumanian profit and loss accounts was £151,083. Further heavy depreciation remains to be provided in Roumania. The parent company and its subsidiaries show a moderate surplus of current assets over immediate liabilities, but a resumption of dividends is evidently out of the question under present conditions. Roumania is still the principal problem confronting the directors, and shareholders were informed at the annual meeting that negotiations were started during the past year with large Roumanian interests for the sale or amalgamation of the company's interests there. Several schemes were considered, but were rejected on the ground that they involved the provision of further money by the Kern Company.

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